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Editor's Table.

☞ It is not safe to send silver by mail, even by registered letter, as it is very liable to be lost. The postoffice department is not responsible for money sent by registered letter, as many people suppose; they guarantee to deliver the letter, but are not responsible for its contents. We recently knew a case where a registered lettter, containing silver, was properly delivered, but the envelope was broken and a part of the contents missing. A money order is perfectly safe. Where it is inconvenient to get such, send 3c. postage stamps.

☞ In answer to an inquiry we would remark that honey is the *natural* food for bees. As considerable feeding will be necessary this spring we would say give them honey if it can be obtained, if not, make a syrup of coffee A sugar. See that they have sufficient to carry them through till fruit bloom.

☞ In acknowledgment of his services in fruit and bee-culture His Majesty, the Emperor of Austria, has presented to Herrn Karl Gatter, Vice President of the Vienna Bee-Keepers' Society, and editor of the *Bienen-Vater*, the golden cross of merit.

☞ Messrs. Jones and Benton arrived in London, England, on February 4th, on their way to the Island of Cyprus.

☞ The prices of glass, honey jars, extractors, separators and many other things are advancing.

Duty on Honey.—The duty on honey imported into Belgium is about $1.25 per 100 lbs. In Germany it is about $1.00 per 100 lbs. In France such a duty has been advocated, but Mons. Hamet, editor of *L'Apiculteur* has taken a strong position against it. He says that such a duty would have a tendency to retard its use; that such should not be countenanced at all. If it was protected by a duty, its home price would be increased, and that would drive it out of the markets, discourage bee-keeping and destroy a source of capital.

Albinos.—Mr. L. A. Lowmaster, of Belle Vernon, O., sent us a specimen of his Albino bees, but they were so much broken up (being enclosed in a letter) that we cannot describe them. Mr. L. describes them thus: "their heads in color approach nearer a purple than that of the Italian; beginning at the waist, they have first three distinct yellow bands, then three distinct white bands; the white is pure—not muddy or dirty; the wings are finer and of a brighter color than those of the Italian. I have found them to be better honey gatherers and more gentle than any other race of bee I have ever possessed. The queens are very prolific."

☞ Clouet and Ritter, professors of chemistry, working separately, have each discovered that all commercial grape sugar contains arsenic in small quantities. The source of the arsenic is the sulphuric acid employed in its manufacture.

Catalogues.—We have received new catalogues of apiarian supplies from the following: J. Oatman & Sons, Dundee, Ill.; Oldham & McBeth, Reynoldsburg, O.; J. H. Thornburg, Winchester, Ind.; J. M. Brooks & Bro., Columbus, Ind.

☞ A letter from Herr Karl Gatter, of Vienna, Austria, remarks that it has been very cold there, this winter, for bees, and that mice have been exceedingly troublesome to the apiarists.

☞ By the Anglo-American *Times* of London, dated Jan. 30, 1880, we learn of an accident to Mr. W. M. Hoge's little boy. While Dr. Deems, pastor of the "Church of the Strangers, of New York," was in conversation with Mrs. Hoge, they heard a scream. The Doctor ran through the hall, down the stairs, and made his way to the kitchen where he found Mr. Hoge's little three-year old boy who had been left alone for a moment by his nurse enveloped in flames. Stripping off his coat with great presence of mind the Doctor wrapped it around the little fellow and thus smothered the flame and saved the child. Dr. Deems said he knew very well his letter of credit and excursion tickets to and from the first cataract were in the inside pocket of his coat, but he never faltered a moment on this account. The fire was extinguished before it had gained much headway, we are happy to say.

☞ Mr. J. O. Todd, Richmond, Iowa, says he noticed on Feb. 8th, a number of drones in his colonies and wants to know the cause of drones being raised so early. Probably the queen is old or otherwise not desirable to the bees; being desirous of rearing another, and judging by the fine weather of January that spring had come, they made early preparations to carry out their design of superseding the queen.

☞ Some time ago, we found a small bottle on our shelves containiug some excellent drones. We were at a loss to know where they came from, but we have since learned that they were left there, at the time of the National Convention, by Mr. James M. Marvin, of St. Charles, Ill. He is to be congratulated upon having such fine stock.

☞ The *Societe d'Apiculteur de la Somme* are about to publish an illustrated report of the apiarian department of the Paris Exposition of 1878. It will contain 150 engravings and will be published in two parts. Price, 25c. each.

Queen Bees in the Mails.

Prof. Cook has sent us the following explanatory article and letter of the Assistant P. M. General, with the rulings of the department on this very important matter. Prof. Cook remarks: "We cannot 'hold the fort,' unless shippers practice great caution. If we should once more lose the permit to use the mails for this purpose, it would be useless to make a second appeal. No cage that contains honey or one that is not made with the *double wire screen* should be used by any one. Bee-keepers must now act as their interest dictates."

A few years since the postoffice department refused the use of the mails for this purpose. There were doubtless good reasons for this order. Honey was placed in the boxes to serve as food for the bees during their transit. Often, owing to the kind of food and carelessness in the method of placing it in the shipping cages, the honey escaped and daubed the mails, greatly to the vexation of the mail agents and owners of the mail. Nor was this the chief grievance. Owing to the faulty cages the agents were frequently stung by the bees, while many others who saw the bees just behind a single wire gauze suffered nearly as much from a perhaps not wholly causeless fear that they might be.

This ruling of the postoffice department was felt to be a severe blow to this important industry. The expense of transportation was not only much increased, but frequently in thinly settled sections, where express offices were still strangers, it was fatal to the introduction of improved bees.

Editors' state associations and individuals all besought the postmaster general to rescind this order, which worked so serious an injury to the bee-keeping interests of the country, but urged in vain.

At the last meeting of the National Bee-Keepers' Association a committee was appointed with Prof. Cook as chairman to make an appeal in person to the postoffice department. Prof. Cook represented to the department the magnitude of the bee interest in the United States, the superior excellence of Italian bees, and the consequent importance that they should be freely imported into every state and county. He also showed how serious an obstacle the ruling of the postoffice department was, especially in the west and south, where a limited population made express offices rare and distant. He further demonstrated that, while the methods of shipping in the past might have been attended with injury and inconvenience, the improved methods and shipping cages of to-day were of such a character as to obviate these objections. Cages were presented for inspection, which contained *sugar as a feed for the bees* and a *double wire screen, the gauze surfaces being one-fourth inch apart*, so that no bee could sting the person who might handle the cage.

After due consideration, the department addressed the following communication to the Hon. Edwin Willits, representative from Michigan, who deserves the thanks of all bee-keepers for his interest in the matter and his efforts to secure a favorable decision:

POSTOFFICE DEPARTMENT,
OFFICE OF THE FIRST ASS'T P. M. GEN.,
Washington, D. C., Jan. 14, 1880.

Hon. Edwin Willits, M. C., House of Representatives, Washington, D. C.

SIR—The postmaster general having heard the statements of the representatives of the Bee-Keepers' Association respecting the ruling of the department which excludes queen bees from the mails, and having become satisfied that such ruling is seriously affecting an interest rapidly assuming large proportions, which interest in many localities is practically denied the use of any facilities of intercommunication, has consented to a temporary suspension of the ruling.

Instructions will be given in the next number of the United States official postal guide to carry this decision into effect. It is suggested that the bee-keepers of the United States be informed through the various bee-keepers' associations that the length of time this suspension will continue in force will depend entirely upon the fact that no harm shall result to any persons engaged in handling the mails, from the transmission of queen bees and their necessary attendants, and the necessity which exists therefore for the adoption of a box or cage which shall conform as far as possible to the provisions of section 223 of the laws and regulations, with the additional security of a **double wire or perforated tin screen for cover**, after the manner of the one submitted by Prof. Cook, the representative of the National Bee-Keepers' Association.

Very respectfully,
JAMES H. MARR,
For First Assistant Postmaster General.

Thus it will be seen that this important concession is provisional. We would strongly urge upon all breeders and shippers of queens to use only such cages as are indicated above, if they send through the mails. These cages can be sent through the mails for 2c. Any person who will endanger the continuance of this privilege by mailing queens fed with honey or without a double-wire screen, is doing serious damage to the bee business and should be quickly exposed by those who receive them. With reasonable care we may rest secure in our present advantage.

☞ We have received from Mr. J. E. Moore, one of his new section boxes with the perfection caps. It makes a very neat and attractive package, when glassed.

Interesting Letter from France.

Mons. L. Jonas, Secretary of the *Societe d'Apiculteur de la Somme*, has written us a long letter dated Jan. 16, 1880, in which he says:

"Since 1816, we never heard of such floods and such cold weather as we have had during the past season. Last summer the flowers gave water instead of honey, and after such an exceptional summer we now have a disastrous winter, when we were least prepared for it. Our loss of bees is at least 75 per cent. I was fortunate, many of my colonies are depopulated, but none are dead yet. I fed them in October 10 lbs. of honey to each colony.

"At our 5th General Assembly just held, you were unanimously made an honorary member of our Society, and our American correspondent, which I trust you will accept. All the members present recognized that your able AMERICAN BEE JOURNAL was very interesting—in fact, that it is the best journal in that line published in the whole world. In that respect, America surpasses to a high degree the European Continent. Many of our people speak and read the English language, and we have devoted some time in our General Assembly to read and discuss the most interesting portions of your JOURNAL. We have also decided this year to give in our *Bulletin d'Apiculteur* a digest of the JOURNAL for each month. We have been slow and obstinate in France, but we are determined now to take a "progressive step" in "scientific apiculture."

☞ A correspondent asks us to state in the BEE JOURNAL the condition of the European markets as to honey. There is no honey in the comb there, worth mentioning; and the markets are but meagerly supplied with extracted honey. Comb honey sells at satisfactory prices, but the losses in breakage, commissions, fees, &c., are quite heavy. To show the growth of the export business in honey, we quote from Messrs. Thurber & Co.'s circular: "In 1877 there were only 1,855 barrels of American extracted honey received in England; in 1878 it reached 10,245; in the past year it grew to 16,611 barrels, from Jan. 1, to Dec. 31, 1879, and the entire stock on hand there now is only 1,100 barrels.

Destroyed by Fire.—We are sorry to state that on January 31st, Mr. B. O. Everett lost his residence and all its contents, by fire. Owing to a strong wind, in 20 minutes there was nothing left of the house, and the family were rescued with but such clothing as they were clad in at the time. The fire occurred about 8 p.m., and his two little girls, who were in bed, were rescued in a comforter, which caught fire from a spark, and again threatened the lives of the children. A ton of honey, and $1,000 worth of apiarian supplies, were also destroyed. Mr. Everett had just issued his circular price lists for 1880, and had them about ready for the mails when they were destroyed, together with the list of names to whom they were to be sent. As Mr. Everett has lost his books and accounts, those knowing themselves indebted to him should lose no time in sending him the amounts due. Mr. E. says he has lost all his "capital, but pluck," &c., and cannot, therefore, now issue a circular to his customers. We would direct especial attention to his advertisement on page 156, of this JOURNAL.

☞ The editor of *L'Apicoltore*, Milan, Italy, speaking of the "improvement of the Italian bee," says: "The American and German bee-keepers follow the laws which lead to the preservation and improvement of every kind of animals, as was proved to us by the Italian bees exhibited to us by Mr. T. G. Newman, editor of the AMERICAN BEE JOURNAL on his recent visit. They were the prettiest bees that we ever saw."

☞ We regret to learn that Mr. F. F. Collins, of Texas, has lost all his bees by foul-brood.

☞ A wealthy man in New York has offered a large amount of money for the best draft of an act prohibiting food adulteration. This is what is needed; it should be general, not special; and applicable to every State and Territory.

Bees Marking their Location.

Mr. F. W. Karnatz, the superintendent of one of the Chicago parks, says that in March, 1864, he was living in Goslar, Hanover. A friend having presented him with several colonies of bees in straw hives, he placed them in a corner of his garden and built a shed over them. Several days after this he removed the hives to another place, but the bees returned to the old location, and clustered. He saw it, and went to the spot and while standing, looking at them and meditating as to what he should do with them, they clustered under his coat. He took them to their new location, shook them down in front of the hives and they remained. He wants to know why they should have thus clustered under his coat? In all probability when Mr. Karnatz first placed the hives there, he stood admiring his new friends as they came out of the hives. In marking their location they marked him; the little fellows, upon finding themselves homeless wanderers, not having re-marked their *new* location, and discovering Mr. K. standing, perhaps, in the same spot, and "meditating" upon the scene, they clustered upon his person. When he took them to their hives and shook them down in front, they joyfully accepted the situation, re-marked that location, and pursued the even tenor of their way.

☞ We have received a six-inch comb foundation mill from C. Olm, whose advertisement may be found on another page. It is one containing all the latest improvements. The samples of comb foundation made on it are equal to any, and the price is only $15. It has double gearing, making it stronger and more durable, and capable of standing any ordinary strain to which it may be subjected, and the crank may be turned either way without injury. The rolls are so "cut," that the foundation has no "weak" way as did the first machines made. It is exactly alike, no matter which way it is run through the machine. The rolls are "cut" by a new process, which makes all rolls exactly alike, so that, should one roll become damaged a new one can be substituted and will work exactly right. At least this is what Mr. Olm claims for the new process.

Peet's Queen Cage.—Mr. T. O. Peet has sent one of his Combination Queen Cages, which he has designed for shipping and introducing queens. Mr. Peet says: "Please examine it, and also the method of putting up for shipment through the mails, as it forms a double-wall, as required by the new law. We think it is just the thing—what do *you* think of it?"

We will cheerfully give our opinion. In the first place, it contains a bottle, and as glass is unmailable in any shape, that will not do.

In the second place, the new ruling of the postal department requires it to have "DOUBLE WIRE OR PERFORATED TIN screen for cover, after the manner of the one submitted by Prof. Cook." Mr. Peet's has only *one* wire screen and is enclosed in a perforated paste-board box. To attempt to use such, will subject us to another reverse ruling of the postal department.

Mr. Peet's cage is nicely made, and but for the new requirements of the postal authorities, would be a first-rate thing. It is to the interest of all to be particular not to endanger the newly-acquired advantage of using the mails for transporting queens. Mr. Peet will see this point, at once.

As there is no patent on the cages approved by the department, and all are at liberty to make them, who choose to, why take any risks, by attempting to use others? We can see no good reason for so doing. Attention is directed to the letter of the Assistant P. M. General on another page.

☞ We are wintering over quite a number of the Pometta imported queens. Those who want them early, can be accommodated from the JOURNAL apiary.

Apiculture in India.

An interesting description of "bee-houses" and "swarming," as practiced in India, is given by a correspondent of the *Agricultural Gazette*, of London, England, who remarks that bee-keeping is the sole business of some whole villages. He describes the bee-houses in use there as follows:

"They are framed of wood, leaving in the walls open spaces of about 2 feet high and from 10 to 12 feet long, which are subsequently filled up with stones and clay, after which the whole is plastered inside and out, with a preparation of gypsum, which is found in abundance in the hills. The roofs are flat, of beaten clay, and the eaves project about 3 feet beyond the walls. As the whole weight of the roof rests entirely on the wooden framework, the stones and clay, with which any one of the spaces is filled, can at any time be removed and replaced without at all interfering with the stability.

In each of these spaces, particularly in the walls facing the south, is placed one or more round earthenware waterpots, the height of which ought to be equal exactly to the thickness of the wall; these are built into the wall lying on either side, with the round bottom outside, and its extreme convexity flush with the outside of the wall; whilst the mouth of the vessel, which is 6 or 8 inches in diameter, is flush with the wall in the inside of a room; in some houses there is as many as 40 of these waterpots thus imbedded. All that is now wanted is to make a small hole on the outside convex bottom of each waterpot for the bees to enter—stick on a small patch of clay below it for them to alight on—put in a swarm and close the mouth of the pot with an earthenware lid made to fit. When honey is to be removed, all that is required is for the operator to enter the house, close the door, tap on the lid of the pot to drive out the bees, or, if that is not sufficient, open the lid a little and blow in two or three puffs of smoke from a lighted rag, then open the lid fully and remove as much of the honey as may be deemed expedient, after which the mouth of the pot is reclosed, and the bees soon return and go to work again. As the houses are occupied by the family as well as the cattle of the owners, and in winter pretty constant fires are kept up, the bees, no doubt, benefit by the heat.

Besides these hives, which are never killed off, each house generally has a large number of others, the result of swarming, which are managed in a different way. For these a hive is prepared thus: A piece of the trunk of a pine or cedar tree, of about 18 inches in diameter, is cut to a length of 2½ feet; this is split down the middle, and each half hollowed out in the center, so that when rejoined there is a considerable space inside. A hole is made in one of the halves for the bees to enter; and a swarm having been secured, it is lodged in the hollow log, the two parts of which, having been securely tied together, are then hung up close under the projecting eaves of the house and well out of the reach of bears, which are numerous in the district, and are very partial to honey.

Foul Brood.—Mr. Jas. Shearer, of Cairnie, Scotland, remarks concerning the present prospect for bee-culture, that "not one colony in fifty will survive the winter without food, and it is also feared that foul-brood is more than commonly prevalent. I have one colony affected. I have never before seen it or had it in any of my hives. In ordinary thriving colonies there are three different substances to be seen in the cells—namely, honey, pollen, and young bees. In the case I refer to now, there is a fourth substance, and when the lid is taken off the cell there can be taken out a sticky brown stuff. It appears here and there in a hive, and is the worst disease that affects bees."

☞ Dr. W. W. Hipolite, of DeVall's Bluff, Ark., the Vice President of the North American Bee-Keepers' Association, whom the Little Rock *Democrat*, calls "the Honey King of Arkansas," has just delivered an able address before the White River Medical Society at Brinkley, Ark., a copy of which is on our desk.

☞ Mr. A. Holly, Girard, Mich., has sent us a bellows for a smoker, as made and used by him last summer. Its peculiarity being that it has two inclined pieces of wood where the leather is used in the ordinary bellows, and it has a double valve. It is added to our Museum.

Correspondence.

For the American Bee Journal.

The Dollar Queen Business.

G. M. DOOLITTLE.

What is the trouble, that we hear so many complaints of the queens which are sent out by those selling dollar queens, being so short lived? Right here we wish to say that the queen is of more consequence to the apiarist, than all other subjects connected with bee-culture, because the queen is all there is of bee-culture; for without the queen we could have no bees, and if we had no bees, of what consequence would articles on wintering bees, hives, surplus honey, etc., be to us? So, then, if we fail to have good queens, or by our mode of rearing them we are producing queens that are deteriorating, instead of growing better, we are in just that proportion making a failure of bee-keeping. But to return. A correspondent writes thus (which is only the substance of many letters we get): "Last week I found 3 dollar queens dead in front of their hives. This leaves but 2 out of 6 introduced in November. The season before, out of 3 introduced in November, I had 1 left in the spring, and she failed in June. That season the 3 cheap queens cost me 2 good colonies of bees, and the other did no good." Here we have a report of 7 out of 9 queens which did not live a year from the time they were hatched, while those in our apiary live to an average of 3 years, and we have now and then one that lives 5 years.

How are these queens reared that do not live a year on an average? The plan, as given by the main instigator of the dollar queen business, is this: Take a frame of comb containing eggs, and place in a hive that has been previously filled, or partially so, as the case may be, with empty combs, and place it on the stand of a colony after having moved the colony to a new stand. Thus we see that the bees that are to rear these bees are all old, or field bees, and are wholly unfit to feed and nurse the embryo queens; at least this is our experience. When a colony is in a normal condition, these old bees do not feed the young brood, but it devolves on the bees that are from 1 to 12 days old, to do the work of preparing the food for the larvæ. By the plan above given the old bees, with their wings all worn with the toil of the fields, are obliged to become young again as it were, and try to prepare the royal jelly for the queen they must have or perish. Is it any wonder that such queens do not average to live a year? Dear reader, such queens are reared for the *dollar* they will bring, and for nothing else, by the majority of those rearing them. To illustrate: Last summer I wrote to a prominent queen-breeder for some dollar queens, and received a reply like this: "We are shipping dollar queens all the time, but as we are desirous of your good opinion, we would like to rear some for you when we rear our own, which our partner is now preparing to do. If you can wait, we should be happy to have you do so." Of course we waited, and in due time the queens came. The point we wish to get at is this: If the queens that are sold for a dollar each are just as good as those reared by natural swarming, or are all good queens, why rear those for their own use, or for the good opinion of a select few, in a different manner?

I venture the assertion, that if a queen reared under the swarming impulse is worth $3.00, one reared from the same mother as dollar queens are generally reared, is not worth over one-third as much, and the chances are that they will turn out as did the 9 our correspondent purchased. Thus, under the dollar queen system of queen-rearing, we are not improving our bees, but, on the contrary, are retrograding.

Our plan of rearing queens is this (and after the results of the past 7 years we have no reason to discard it): In the spring we select the colonies having the queens giving us the best results the season previous, and as early as possible get them strong in numbers. If we can do this in no other way, we give them brood from other colonies; but by a judicious spreading of the brood the object can generally be attained without help from other colonies. So we get them to swarm in advance of the rest, thus getting our cells or queens reared just as the bees used to rear them when they first came from the hand of the great Creator, and He pronounced them good. These cells we give to nuclei, which are formed to suit the requirements of the cells, and by the time we wish to use queens in the spring, we have queens that are just as good as those reared by any other method, and, we think, a little better. If we wish a further lot of cells from the same mother, we put the colony containing her in a hive filled with empty combs, and in two or three days, when she gets well to laying, we take away one-half of the empty combs, and put in place thereof frames of mostly sealed brood, from other hives, and in about 15 days

thereafter we get another swarm with the same queen, and, of course, a fine lot of cells. So we keep on till the swarming season is over. Thus, by a selection of the best queens each year, and rearing them by the best plan, our bees may be improving iustead of retrograding.

In conclusion we would say, as at the beginning, that all other things are of minor importance when compared with the queen. So let us, as apiarists of America, hold the standard of excellence so high that when we come to look back over the next decade of years, we can see we have made a grand advance.

Borodino, N. Y., Feb., 1880.

For the American Bee Journal.

Extracted Honey vs. Adulteration.

A. B. WEED.

The question whether to raise comb or extracted honey, is an important one to the bee-keeper. He is sometimes so circumstanced by the condition of his hives, that either one kind or the other is the more profitable for him to raise. In the October number of the BEE JOURNAL of last year, Thurber & Co., on page 448, say: "We earnestly hope, for the sake of the best interests of the bee-keeping community, that you will take time by the forelock and work up a greater interest in the production of extracted honey." They also "warmly recommend the great mass of honey producers to work their apiaries for the exclusive production of extracted honey." This is said with reference to a certain condition of the English market, but still it shows the importance of this form of honey, and the high esteem in which it is held abroad.

On page 547 of the JOURNAL for Dec., 1879, your correspondent "Louisianian," says that in his locality honey is raised in the extracted form almost entirely. Since both kinds of honey can be raised with profit, it is of the highest importance that the public should look with favor upon them both. It is also desirable that our customers should be equally ready to buy any kind, for then the bee-keeper is at liberty to raise the kind which best suits his convenience or ability, instead of being obliged to sacrifice his interests in order to meet a caprice of the market.

I am very much surprised that a writer in this month's JOURNAL should urge bee-keepers to "turn prejudice against liquid honey"—as he does on page 77—especially since comb honey is not necessarily pure. The JOURNAL calls attention to this fact on page 86. If it were possible to cast upon extracted honey an undeserved odium, would it be a wise thing to do?

There is danger that if buyers believe that one kind of honey is adulterated, they will at least suspect the other, and they will be especially apt to do so, if they get their information from apiarists themselves. If the producers of one kind of honey unjustly decry the wares of their brother bee-keepers, it is quite probable that those who are interested in the other kind will retaliate by pursuing a similar course of conduct concerning the wares of the others, and this would bring about a very bad state of affairs in our business. If apiarists are to rival each other, let be in maintaining a high business standard.

Detroit, Mich., Feb. 1880.

[Our correspondent on page 77 was speaking of the adulterated liquid honey, and the one on page 86 was advocating a general law against adulteration. Mr. Weed has evidently misapprehended their language.—ED.]

For the American Bee Journal.

Will all Pure Honey Granulate?

C. WURSTER.

The question, will all pure honey granulate or candy, has been discussed a long time, and with great fervor; but it would seem to be still an open question, and I will now take the liberty to draw the attention of my fellow bee-keepers and assert what I heretofore have never seen in print or heard mentioned, that the honey so extracted remains liquid, wholly or partly so. I charge it to the fact that it was removed from the combs before being sealed over by the bees. Of this fact I am so well satisfied, that I can not believe that any one will be able to disprove it.

I have made exhaustive experiments to fathom the cause of it, and find, that such honey is extracted from the comb before it has evaporated (or, as I call it ripened), which I have found it will not do so in three days. I find that honey extracted from the same combs every three days will not uniformly granulate or candy, even if the honey is brought in by the bees in a very thick state. In proportion to the consistency the honey is in, when extracted, so will that honey assume a granulated form. I have extracted basswood honey that had been stored in the comb three days and rather thin, immediately putting it

in barrels, but I left the bung out and it did not candy in the least, though it was exposed to the coldest zero weather all the winter. For several months it remained the same; while some of it being kept in an open vessel became thicker and somewhat grainy, but not absolutely solid. I would not care much as to the consistency, were it not for the flavor, upon which the money value of honey depends, for it is just here where the cause lies that so much honey is pronounced adulterated. Such honey does not bear that mellow, charming and agreeable taste, and any person not accustomed to the use of honey, will say that it has a strange, strong, rank and wild taste, and he does not like it.

Unless bee-keepers pay more attention to this matter, we need not look for an increased demand, but rather the reverse. I have heard many express a preference for ordinary syrup rather than such honey. I have seen and tasted, this year, in dozens of places in the city of Toronto, such honey. Some of it is as thick as tar and clear as water, but with the peculiar rank flavor, with an acetic aroma and bitter taste; and the vendors, in the majority of cases, did not think the honey pure.

As I have rarely found pure honey not granulated in November, I would caution all bee-keepers against extracting honey before it is capped by the bees.

Klineburg, Ont.

For the American Bee Journal.

Queens Duplicating Themselves.

D. A. PIKE.

In an article in the September number of the AMERICAN BEE JOURNAL, I noticed a proposition made by Mr. A. F. Moon, to the effect that he would give, to any one sending a queen that would duplicate herself twelve times in regard to color, $25 for each queen.

Now, I know that it is hard to find such queens, and that they are very rare in some places; yet I am confident that I have them in my apiary, and I do not fear to come forward, accept the proposition, and, provided a fair and just decision is rendered, do not have any fear that I shall bear off the palm. The flag still waves over us Americans, as apiarists, and it seems strange that a question of so great moment to queen-breeders should be decided in the negative, simply because nobody can pick up courage enough to send a queen that he knows will stand the test, and quietly await the result. I have tested the matter, and now I accept the proposition.

I will send my queen, some time during the month of June next, to Prof. A. J. Cook, as per conditions, who may rear the young queens, and submit them to the committee of judges for a fair and just examination and decision.

Smithsburg, Md., Jan. 21, 1880.

For the American Bee Journal.

Bee-Keeping in Spain.

CHAS. DADANT.

I have translated from the *Bulletin d'Apiculture de la Gironde*, for January, the following article, which will be of interest to the bee-keepers of America:

Here the colonies of bees are few in number compared to the space of land. They are all located near the heath; none can be seen around the villages or in the orchards.

The owners of bees place them in groups of 5 to 20, in the spots the most favorable; mainly on the side of a hill, towards the southeast; sheltered from the north-western winds, and whose soil produces rosemaries intermixed with cystuses and heath trees.

The bee yard (*asiento*) is prepared by means of a few blows of the mattock, to level the ground. The shrubs are cut all around, to prevent the risks of fire, and the hives are placed directly on the ground. The hive (*corcho*) is a cylinder of cork, about 75 centimeters high and 35 in diameter (30x16 inches). A round of cork (*tempano*) shuts up one end of the gum, which is placed on a piece of the same material (*solera*) and this is put directly on the ground.

Such a hive is worth a *peseta* (about 20 cents); with a colony of bees, and filled with combs, it is worth 6 pesetas ($1.20). From about the middle of February till the last of March, the bees work on the flowers of rosemary; in April on the heath; in May on an indefinite number of plants, especially on thyme (*tomillo*) and broom heath (*quizuela*) with white blossoms; in June on the cystus, on the catkins of oaks and chestnuts. July and August are poor in flowers. In September there is another heath with white flowers; in October and November there is the arbutus tree.

In December, January and February the bees find very little; yet, if the weather is favorable, they can find enough to live on. But rain or cold prevents them from flying out, and when such bad weather lasts till March, a great many bees are liable to starve. They are never fed by their owners.

In March the hives are raised to clean the *solera*, and to cut the combs, which

project too low. This operation is called *escarzar*. Soon after the new hives are prepared to receive the swarms.

Swarming is always done artificially, between the 15th of April and the 15th of May. The hives full of bees (those which have bees in front) are always selected to be divided. After smoking the colony, the hive is tipped in a slanting position; an empty hive is placed on the first; both hives are united by a cloth, on which they are put; this cloth is pinned with 4 iron pins. All is fixed in such a way that the sun can warm the empty hive. Then a hole near the cover of the hive containing the bees is opened, and smoke is directed in the hive through this aperture; the hive is stricken with a small stick till the bees run into the empty hive. The operator watches attentively to see the queen passing from one hive to the other. As soon as the queen has entered the new hive, if they think that the swarm is sufficiently numerous, the hives are separated; the one containing the swarm is shut up with a wooden cloth (*manta*); the old colony is put in its place, and the swarm is located in another place (*posada*). When, during the passage of the bees they find two queens, they keep one in reserve, and use her in case of need.

When they are not sure of having a queen in the new colony, they put the hive on a black woolen cloth (*manta*). After a quarter of an hour, if the queen is there, they find a few eggs on the cloth, that the queen has dropped. If there are no eggs (*carochitos*), the queen is not in the hive. In such case, they let the bees go to their old hive, and they begin again two or three days after.

The honey harvest is made about the last of June, in the mountainous region (*dehesa*), and on the table lands (*rands*) on the last of August.

One colony of bees gives 1 lb. of wax worth 1.125 *peseta*, 8 lbs. honey worth 2 *pesetas*, 1 swarm worth 1.50 *pesetas*. In the operation of cleansing the hives in March, every hive gives a little wax, worth 0.125 *pesetas;* gross amount 4.750 *pesetas*. The expenses can be estimated, with the cost of watching and visiting the bees every second week, at 2.750 *pesetas*. The net benefit is, therefore, 2 *pesetas*, or about 40 cents per colony.

The operation of cropping the honey is called *castracion*. The hives full, and which have given a swarm, are *castrated*.

To perform the *castracion*, they lift out the *tempano* of the hive, and send some smoke of rosemary twigs among the combs. The bees are thus driven to the bottom of the hive. Then with two tools (*cueharra y citrera*) they cut out about one-third of the contents of the hive, which is placed in a bag made of goat skins. Then the *tempano* is replaced upon the hive.

When the honey crop is gathered, the rounds of cork are secured with stones, to prevent the rain from penetrating inside the hive, the crevices are shut up with earthen mortar, a small gutter is made around to turn away the water, and good *soleras* are placed under every new colony.

The other cares consist in visiting the hives from time to time, to see that the goats do not throw down the corks which cover the hives, and if rain cannot run inside of them.

Guadalupe, Spain, Nov. 12, 1879.

Do Not Let the Bees Starve.

Brief directions for early feeding may be given as follows: Feed only good ripened honey, or syrup made from coffee A sugar; feed just at night by placing the feeder (an inverted Mason fruit jar, the metal top having been punched full of small holes, or a box containing a wooden float) in the top story or body of the hive, so no outside bees can reach it should the feed not be entirely removed before the next morning; aim to give only as much as the colony can remove in one night, unless the bees do not fly during the day time, in which case, if they continue to carry down the honey, the supply may be kept up.—*Michigan Farmer.*

[Tin cans, such as are ordinarily used in putting up fruit and vegetables for winter use, are about as good as anything we know of, and much the cheapest, as they can usually be had for the saving, or for the trouble of gathering up and cleaning. Fill about three-fourths full with honey or syrup, tie a cloth firmly over the open end, then invert the can on the tops of the frames, and cover all with the blanket to keep warm. We do not advise feeding before the weather is warm enough for the bees to have frequent flights, unless they are quite destitute, when feed should be promptly and generously given. In all cases of feeding, we must be very careful not to incite the bees to robbing, which is one of the greatest disasters that frequently befalls the inexperienced bee-keeper at this season of the year. Should they be disposed to do so, close the entrances of all the hives to a half an inch.—ED.]

For the American Bee Journal.

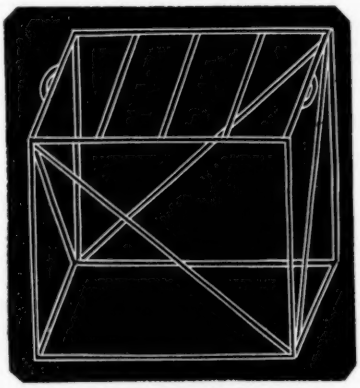
My Swarm Catcher.

M. S. SNOW.

I will here give a description of the swarm-catcher that I have used for years. It will serve the purpose of catching natural swarms, or in case of "swarming out," which they will often do, even if they are given a card of unsealed brood. I had three try it last season; they seemed to eat up all the eggs in the comb and broke up keeping house, making preparation to leave, and probably would, had it not been for the catcher.

Bees hived against their will,
Are of the same opinion still—

providing they have a nice hollow tree picked out. It is a nice thing where there are many bees kept and allowed to swarm naturally, for it keeps them all



separate. I have had as many as five or six in use at one time, making it unnecessary to climb trees, cut limbs, or dig them out of brush; they are caged and under control, and can be hived at leisure; no hurrying or sweating around for fear they will leave.

It is simply a light frame with handles, the sides and top covered with mosquito bar. Of course the hives must be on the ground, and so arranged that the catcher can be placed over them. All are welcome to use it, as there is no patent on it. If the bees have quite a start before it is placed over the hive, those outside will cluster back on the catcher, and seem to be anxious to get in. Queens are not so liable to be lost as when they swarm all over the yard; she climbs up the screen and joins the bees in one corner. I have had them start comb on the top-bars, when left 15 or 20 minutes before hiving.

Osakis, Minn., Jan. 20, 1880.

Journal of Horticulture.

New Plan of Giving Artificial Pollen.

FRANK CHESHIRE.

Some experiments with condemned bees, which I take to be in their results exceedingly instructive, I will now recount. On September 19th I placed 4¾ lbs. of bees in a large and well-protected hive, in the frames of which narrow guides only were provided. The first two days they took 4 lbs. of syrup, but afterwards for 7 days they were provided each evening with a fil ed bottle containing 3 lbs. 11 ozs. of syrup. They built comb of great evenness and whiteness, which now more than half filled the hive, yet the queen laid but few eggs. The reason, upon theoretical grounds I was convinced, was lack of pollen. Very little at this date could be found in our neighborhood, as the land is mostly under cultivation. If the pinch for pollen was already felt, how was the greater difficulty of providing sufficient for early spring breeding to be met? I placed trays of pea flour (pea flour I first pointed out as a fine substitute for pollen, since it stands in the front rank as a flesh-former) near to the hives, sprinkling chaff over the pea flour, as is now generally well understood, to give the bees a standing place while gathering it on o the hairs of the thorax.

A colony of Italians that had fed from these same trays in the spring started at once, and carried it in heavily, but my newly arrived blacks seemed unable to learn the nature of the boon offered them, only an occasional bee loading itself. I now reflected that the pollen of anemophilous trees—*i.e.*, trees fertilized by the wind—is not sticky, so that the wind soon separates it from its anthers and blows it on to the adhesive pistils of its flowers; while the pollen of entomophilous trees—*i.e.*, trees fertilized by insects—is stickey, and so can the more readily be made into pellets by the different species of bees, and added, as an experiment, to my pea flour a small quantity of pounded sugar to increase its adhesiveness. It was now perhaps loaded more easily and quickly by the Italians, but the blacks, as before, listened not to my wooing. The problem to be solved took this form: We can give sugar without asking our bees to leave their warm cluster to take it, but artificial pollen, even if accepted, needs the bees to quit the hive and expose themselves often to a temperature so low that many must perish; while the weather, when nitrogenous food is essential, may be such as

to altogether prevent any outside gathering of it. How, then, can pollen or its substitute be given within the hive?

In the natural way bees collect the pollen on the breast, and transfer it by the metatarsal brushes to the pollen pockets on the tibiæ; but to accomplish this, as may be seen by watching a bee over a flower, two of the three pairs of legs are required, and since the bee cannot stand on the remaining pair this packing is of necessity effected on the wing. I, in order to meet this requirement, placed a small tray of pea flour on the top of the hive, and added a small covered flight chamber, so that the bees coming from the top opening might have room for the hovering flight while packing. This was partially successful, but had this drawback—that the warm air of the brood-nest was leaking freely away into the chamber above. It now occurred to me that bees, when natural pollen is stored, place over it a layer of honey, and then wax seal it. After extracting the top of the stored pollen, saturated with honey, is constantly seen. Can it be wrong, therefore, to place the pea flour mixed with honey or its equivalent at once in the cell, and so save the bees all the exposure, labor of gathering, and storing it?

I now mixed some pea flour with syrup, containing the small quantity of salicylic acid I have previously recommended, into a paste, and, removing a comb, applied it with a flat knife, as boys at school sometimes apply butter to bread to fill up the holes. About 3 ozs of pea flour were soon put into the cells and the comb returned. Two hours after, upon removing the comb, to my intense delight, the bees had sucked out the excess of syrup, and had packed my pea flour down in the most beautifully regular manner, as though it had been pollen gathered in the natural way. The problem was now solved. What with much labor, and probably much loss, could only have been accomplished by the efforts of hundreds of bees had been done through my help by a few bees with comparatively no exhaustion, and actually no exposure. The next day the greater part of this pollen had been consumed, while the dry starved appearance of the brood, well-known to those who have overswarmed artificially, had passed away. Giving doses of pollen as needed, the breeding became rapid, and that hive has now not only a very large quantity of brood, but comb building has again commenced.

On the 8th inst. I put 4¾ lbs. of bees taken from 5 straw hives into an empty one and fed freely, and on Saturday the 11th I examined it. Comb had progressed well, and eggs were laid. As I removed a comb and pasted my pea flour mixture into it, I felt some compunction in marring its spotless purity. On Monday the 13th another examination was made, when I expected to find the pollen packed, as in the other hive under experiment; but, to my astonishment, in the 48 hours almost the whole of it (about 3 ozs.) had been consumed. There was yet no hatched eggs that I could find. The bees then, under the labor of comb building, needed the nitrogenous food to make good the wear of tissue involved. The microscope showed pollen granules in the stomachs of wax-workers, which gather naturally. These bees had made comb on sugar only, but no doubt were growing in some sort emaciated under the process, and the pea flour supplied the place of the pollen they would have consumed whilst gathering their sweets had this been done in the normal manner.

What an absolute refutation this gives to the notions of those who assert that bees never consume pollen, a statement which has no better base than a guess, and which is utterly at variance with all scientific theories of diets. This later hive, worse off as the season is more advanced than the one first named, is going ahead splendidly, and is rearing great breadths of brood, and is receiving its pollen as occasion requires.

We see here a way of building up bees almost without regard to the season, for not now can we give syrup, which is but half a diet, but pollen likewise, without one wing being moved in the chilly outside air.

London, England.

For the American Bee Journal.

Selecting a Location for an Apiary.

WM. C. CASSON.

One of the most important requirements for a successful apiary is location. We may have the best hive in use, the best race of bees known for gathering honey, the apiarist may be well adapted to the business, possessing all the knowledge necessary for success, but with a poor location it is still but a poor business.

Comparing it with other departments of farming—what is the choicest dairy of cows, the convenient dairy fixtures, warm stables and a man adapted to the work—without a rich pasture for summer, and good, sweet, rich meadow grass for winter.

We can plainly see that the future honey producers of America will be men who make it their special business; they should not be encumbered with so much other business that their first swarms have to hang on a bush all night or their neighbors be called to hive them, and they must have the best location their section affords.

I think there is scarcely a township in the United States but has from 2 to 6 fair locations. Such may be divided into three or four classes. The best location is one that faces the south and east, with a plenty of water, not too much, but always there; it is not enough that there is plenty within ½ or ¾ of a mile, it should be within 10 rods. If there are hills, have them on the north and west to break the wind from those quarters. There should be a plenty of pollen and honey-producing plants to rear a large stock of bees through the months of April, May and June. Then a plenty of basswood, white clover, raspberry and buckwheat, to obtain the surplus from.

The next best location is one that will rear all the bees necessary to gather a large yield, and but little basswood, white clover, raspberry, and about buckwheat enough for each family to have a mess of pan cakes. A poor location is one on the top of some high hill or half way down on the north side of it, with no water short of ½ a mile, or 40 feet under the ground, and plenty of wind from all points of the compass. It will, perhaps, have but little white clover, no basswood or buckwheat short of 2 or 3 miles; where the bees wear themselves out, in trying to live and keep up their race.

There are many fields from which bees would reach a rich harvest, that would not be a suitable place for an apiary. Last June I crossed a pasture field on the top of a high hill, which was covered with the thickest white clover I ever saw; it was so thick and white that it looked like a field of buckwheat in full bloom, ½ a mile away, but I should not want my bees on the top of that hill; I would rather have them within ½ a mile in the valley below.

In choosing locations we should be as particular as we would in locating a tannery or a mill, so the heavy burdens will work down hill, or around it. Bees should not have to fly up hill on the last end of their journey home; it is too hard work. A location sheltered from the north and west wind, facing the south or east, has more advantages than some are willing to allow. It not only keeps off the cold wind, but the sun in the spring warms up the hive and enables the bees to be out taking exercise and cleaning out the hives, and carrying in rye flour before natural pollen comes.

We often hear the inquiry not only through the press, but men who pass by, ask: Does it pay to keep bees? Would bees do as well where I live, as they do where you live? I answer: It depends upon the location and the fitness of the person for the profession.

We cannot change the nature of the honey bee; the industrious habit that they have possessed for thousands of years of visiting every opening flower and gathering all the nectar secreted there, they still possess, but we have learned by experiments that we can assist them in storing honey enough for their own use as well as ours, by furnishing a suitable habitation and location.

Addison, N. Y., Jan. 21, 1880.

For the American Bee Journal.

Chaff Hives, and Packing for Winter.

MRS. D. C. SPENCER.

As my convictions in favor of chaff hives, and out-of-door wintering, were somewhat strengthened by what I learned at the National Bee-Keepers' Convention at Chicago, I returned home determined to see what could be done to accomplish these results. Having 50 colonies in Langstroth hives, that I wished to winter thus, I devised means of changing them into chaff hives. I first made chaff division boards with 1⅛ inch space for chaff; the side to go next to the bees, was made of boards used for backs of picture frames, &c. The other side, of felt carpet paper, to be placed each side, inside the hive. I next made a chaff front piece to be placed in the porticos above the entrance, having a chaff space 1⅜ inches thick. The outside of these were made of ⅛ inch boards, the other of felt paper. Then I made a "lean-to" of similar material, covering the rear end of the hive, all intended for permanent fixtures, protecting from cold and heat.

I use an open honey-board ½ inch thick, having several ⅜ inch spaces running crosswise of the frames, and on this a heavy cotton cloth. The apiary being platted as directed by Mr. Root in A B C, the hives in alternate spaces, 6 feet apart each way. They were on summer stands made of 2x4 scantling, with slanting alighting boards *a la* Cook.

Before packing, I placed the hives

with their stands in rows, by moving those of the first row into the vacant spaces of the second; the same with the third, fourth, and so on, leaving a space between the hives of about 20 inches. The 4 inches of space under the hives, and the ground around, was covered with sawdust. I packed the bees, about the middle of November. The weather was warm but rain threatened, so that I could not take time to put all of the division boards in place, so I had to content myself by placing them against the outside of the hives, so that the top bar came close under the cleat supporting the second story. These consolidated rows were boxed, leaving about 12 inches of space in front and rear, and packed with chaff and straw to the top of the hives. Over the hives a chaff cushion 22x30 inches, 6 inches thick, was placed, projecting each way and resting on the surrounding chaff. On the cushions were placed the covers of the second stories to guard against leaky roofs, as well as for storage. Over these were placed shed roofs, having first filled every vacant space with straw. The entrances were contracted to ¾ inch, and straw packed around leaving an opening through which the bees may pass at will. A movable board was placed in front of the entrances to exclude the light and snow.

We had a few days of cold weather during the first week of November, so that the thermometer indicated zero, or below, two successive mornings. The weather soon changed so that it was quite warm, with no frost in the ground when I packed my bees. A few bees on the outside combs were frozen to death, yet I think they were all quite strong colonies and well supplied with honey.

I placed my observation hive with another, in the cellar, and I may hereafter tell you how they have wintered.

Augusta, Wis.

For the American Bee Journal.

Observations about Hives, &c.

HIRAM ROOP.

We often hear the remark that if we could have July and August weather all the while, bees would not have dysentery. If bees are put in proper shape they will generate sufficient heat to keep up a July or August temperature, in the coldest weather, and in our opinion be able to evaporate impurities from their stores, though some few of the frames in use do not admit of putting bees in proper shape for winter; Nature designed the honey-bees to go into a dormant state on the approach of cold weather, like nearly all the insect creation, and remain in this condition for several months, without injury to themselves. Thus we see that long confinement to the hive has nothing to do with the mortality among bees. Some say that many years ago, bees gathered honey from honey-dew, and then they did not have dysentery. If some scientist will tell us what kind of *Aphis* produced honey-dew, many years ago and what kind now do so, we shall all be able to answer that question.

Bees in a perfectly healthy condition discharge their feces in the hive, but in a dry state, and it is generally mistook for uncappings, the watery particles of their food being thrown off in a vapor, provided that the colony is in a proper condition to expel such moisture. Some hives are suitable for a home for the honey-bee, but the majority of them are not. The hive that contains room enough in the breeding appartment for 20 to 30 lbs. of honey in excess of that space which a queen will occupy with brood, is, at least, unprofitable for comb honey, not to enumerate any of its other disadvantages.

Some years ago I visited several apiarists in one of the Northern States, one of whom used a hive with 1200 cubic inches inside the frames; he had sold 4,500 lbs. of comb honey and 2,000 lbs. of extracted, from 55 colonies, while his neighbors had no honey to sell and were complaining of a poor season. They used a hive with 2,000 cubic inches, and thought it made but little difference what hive they used, provided it had movable frames of some sort.

During the summer of 1878 I ran 200 colonies for comb honey; in August of that year there was honey-dew, worked upon by about two-thirds of my colonies for about 10 days; the balance not seeming to notice it. We watched them closely but were unable to discover that they ever got a taste of it; I was also very particular to mark the location of these colonies, when put into winter quarters, and found on examination in the spring that none of them were troubled with dysentery or spring dwindling, while all the others had both badly, though they were nearly all strong in numbers when placed on the summer stands. We are satisfied, by experiments made, that had these affected colonies been in hives suitable or even fit to winter bees in, they could all have been saved.

Although we never deal in patent hives, we are sorry that most of our leading apiarists discourage any further improvement in hives. That this is wrong there is no doubt; the hope of

reward has given birth to many inventions, some of which have been of incalculable value to the country, increasing its wealth beyond our power to estimate. True, the country has been flooded with useless patent hives, but how long will it be before the standard hives of to-day will be equally useless? Is it not the case that what accomplished the greatest good in its day, is at length out-grown and becomes an embarrassment requiring to be wholly modified or laid aside.

Carson City, Mich.

Translated from the Bienen-Zeitung.

Use of Electricty in Catching Swarms.

O. FREIWIRTH.

Every apiculturist knows from his own experience, what colossal difficulties present themselves to the expert swarm catcher and yet more so to one that is unskilled and timid, when it becomes necessary to take in swarms. Sometimes the swarm has chosen some inaccessible hedge, the limbs of some unclimbable tree or some other unattainable object for their resting place. Often swarm follows upon swarm, the second one alighting upon the first, while a third begins to get ready to swarm. If, in such a case, the bee-keeper has not his head in the right place and firmly set—he will surely lose it, and with it a few swarms of his beautiful bees, which will bid him good-by, never to return.

Vexation and losses, and not unfrequently sneering mockery remain to the bee-keeper as a reward for his sincere, although unsuccessful painstaking. He at last consoles himself with the resolution, to manage things better the next time—but his unlucky star may again play him a trick.

In catching a swarm, especially if the apiary be extensive, one has to exercise much courage and skill, in mastering his stinging-children that are at liberty.

To obviate all painful stinging and the many deeply felt losses of swarms, I have constructed for my own use an electric swarm catcher, by means of which I can in a moment render a single bee as well as the largest swarm incapable either to sting or fly, and that without killing a single bee.

In the employment of the electric current, I took into view the well known fact, that, when any chosen number of persons join hands, and the members at the end of the chain touch a loaded Leyden jar or the electrodes of an active apparatus of induction, every member composing that chain will feel the stroke, respectively the opening and closing strokes, at the same moment, and that these strokes, according to the power of the inducted current, can be made to extend until they have produced temporary lameness.

In my experiments I used single bees as well as small and large clusters, treated them in the beginning very considerately and tender; later somewhat more vigorous, and lastly even merciless. The results of my experiments have surpassed my expectations, for the hospital which I had prepared for that purpose, consisting of a number of labeled boxes of small and large sizes, emptied themselves gradually, and their occupants issued forth fresh and sprightly. The duration of convalescence was in proportion to the strength of the current employed, and alternated from 10 minutes to fully 8 hours.

Hereafter I have the assurance, that there is a possibility of stupefying bees within their hives, as well as swarms hanging in the open air, by means of electricity. As I have had no opportunity as yet to put my art to the test upon swarms, I content myself with having instituted the above mentioned experiments, and of having obtained proof within the bee-house of the correctness of my conjecture.

To present an opportunity to the friends of bee-keeping to construct electric swarm catchers, or of having them constructed, without costly experiments. I will endeavor as far as words will permit, to describe my apparatus. In a small wooden box, about 5 inches deep and of the same width and length, there is to be found in the upper half a zinc-coal element, which is filled half either with double chromate of potash (3 parts of this potash, 4 parts pure sulphuric acid and 18 parts of water), or with sulphuric oxide of quicksilver (to be had at any drug store). In the lower half of the box there is a so-called sliding apparatus (Schlitten-apparat) with a hammer interruption. On the front side of the box is a knob, with which to control the power of the current or to interrupt it. The crotches holding the conducting wires are screwed down upon the cover of the box; the conducting wires are given a length at will, and when a case presents itself, they are fastened to a short stick or long pole, just as the height may require which lays between you and the swarm; they are fastened either with tacks or merely tied with cord. The upper ends of the conducting wires are not isolated (exposed metal), and project several inches above the

top of the pole; with these ends, which as a matter of course, must not come in contact with each other, the swarm is electrified.

The entire apparatus is transportable, and, when going out to catch a swarm, this little box is buckled around the waist like a cartridge-box. The liquid can be thickened by adding sawdust; but that is not necessary, because the apparatus is held in a horizontal position by the belt, and the hermetically closing lid prevents any liquid from escaping. The stick or pole, with the conducting wires attached thereto, is taken into the hand and raised or lowered, as may be required.

The filling of the apparatus only costs a few cents, and suffices for the electrifying of hundreds of swarms. My apparatus cost me about 30 marks (about $7.00).

When using the apparatus on bees in the hive, the conducting wires must be introduced into the comb, or, to make it more simple, they are to be pushed through all the combs at such a spot where you suppose the bees have mostly gathered; the honey sticking to it will not interfere with the effect—on the contrary, as a liquid, it will even convey it with greater speed.

Cannstatt, Germany.

Journal of Horticulture.

Things Known and Things Unknown.

A. PETTIGREW.

Government and organizations in the kingdom of a bee-hive are things beyond the reach of human knowledge. While united effort and perfect order are remarkable features in the conduct of a community of bees, who knows aught of individual authority and rule?

The industry of the honey bee is a fact known in all lands, and is the theme of poetry and song amongst civilized and enlightened communities. It is hardly possible to form an adequate conception of the industry of bees. The amount of work done by a colony in the height of the season cannot be measured or compassed. A colony has been known to gain in weight 10 lbs. a day—20 lbs. in two days; but who can tell the amount consumed to meet the waste and wear sustained in the manifold activities and labors both at home and abroad of such active creatures as bees? The amount of food consumed by bees during a day of hard work is great and should not be forgotten when their industry is under consideration. Even at night in summer there is a considerable loss of weight by the escape of moisture of a strong full colony. At one time many able bee-keepers believed that the queen alone distributed her eggs; but many now know that the bees assist in this work by removing the supernumerary eggs from the cells in which they are found and placing them in empty cells. But the question of how much heat is necessary in hatching brood remains unsettled. Brood evidently is brought to perfection at the swarming season in a high temperature, and often in February at comparatively a very low one. This is an interesting question for experiment; also the question of how much pollen is used in rearing brood, and how much or how little is eaten by adult bees. A few tangible facts about the consumption of pollen would tend to remove doubt and difficulty, and clear off the darkness that surrounds the subject.

One of the greatest marvels of bees is their wax-making powers. It is well known that wax is a secretion and excretion of bees; that the work of secreting wax goes on both by day and night—in the fields as well as in the hive; that during the comb-building season hundreds and thousands of bees may be seen and caught in returning from the fields with four, often six, plates or scales of wax each, half excreted or thrown off from the rings of the under sides of their abdomens. The quantity secreted, the way and apparent ease of excreting wax, are alike wonderful. The mysterious marvel of all is the fact that this wax-producing power is voluntary—put into action by the will of the bees. This may be proved in many ways, but simply by putting a colony into an empty hive. The bees at once commence to make wax, and in less than 12 hours some comb is built. In honey weather the hive may be filled in less than 12 days. If another colony be put into a hive full of combs the bees commence to fill them with honey, but the bees make no wax save, perhaps, a little for cell-lids to cover the honey and brood. In comb-building a great many of the wax plates fall on the boards and remain there unused. Their presence and accumulation are signs of health and prosperity. In full hives few wax scales are formed and fewer lost. If wax was not a voluntary secretion much honey would be consumed and wasted in the production of wax when it is not needed. In covering cells of brood the bees use materials of the same color as the cells. If the brood-combs are dark in color the covers are dark too. Why this is done is left to conjecture.

For the American Bee Journal.

"Apis Americana"—The Coming Bee.

JAMES HEDDON.

The remarks in the editorial department of the January number, 1880, are just my ideas, better expressed than I can give them. I have been thinking a great deal, and working some, too, in the direction of breeding qualities in bees, for the last five or six years. Before that time I was band-hunting—*i. e.*, breeding for stripes.

Being a special honey producer, my only income being derived from that source, I of course made every effort, both physical and mental, to increase my crop of surplus honey. Peeping first into this hole, then that, I thought one day that though there was much difference in the yielding qualities of different fields, also differences in results from different hives, and from other sources too numerous to be here mentioned, a still greater comparison was always to be seen between different colonies, of apparently equal numbers and condition, standing side by side. Is not this fact too widely known to more than need mentioning. I conceived the thought that by far the easiest way to increase my income was to endeavor to get all my colonies to act like Nos. 21, 27, 34, &c. Who could doubt for one moment that the sure and only way to do this was to re-queen the most inferior colonies with queens reared from the better colonies, that had no bad traits of character. Nature seems to extend her invitation to us to do this, for she has made it much easier to rear queens for home use than for sale; also given us the power to rear hundreds of queens from the same mother; made it such an easy matter to get rid of drones from each and every colony whose blood we do not desire; made development so rapid that we can rear many generations in a single season, and all with but very little lost time to the bees, when properly executed.

Three years ago I commenced to breed mostly pure, long, dark Italians in one apiary, and in the other (6 miles distant) a cross between the bees mentioned above and the large, brown, German bee. Of course neither apiary is, or ever has been strictly pure with either strain. These "strictly pure" apiaries are thickest on paper. A tour among "pure Italian" bee-keepers will astonish the tourist generally. In each apiary alike I was careful to breed the best traits in, and weed out the undesirable ones.

The Italians used were from Dadant's importation, and directly from Oatman, and, in my judgment, unexcelled by any other strain of their species. Such has been the testimony of all who have tried them, so far as I have heard.

Last season being the third year of this cross-breeding, I watched and compared closely the results. Without going into detail and making this article tedious, I will say that, whether a standard or fixed race can ever be produced or not, these crossed bees are the best bees, all things considered, known to the writer. The great objection to hybrids has always been that "sharp disposition." It happened that the strain of German bees I had, when I first introduced these long dark Italians, were such, or else the yellow bees were such, or the peculiar combination was such, that their crosses were as gentle as any bees I ever handled. This has been the case in every instance.

Mr. Langstroth was undoubtedly correct when he wrote: "Crosses, I think, will prove the point in the coming bee."

I was sorry to see so much more enthusiasm to import a supposed valuable freak of nature, the Cyprian, than to breed up the "coming bee," because I believe the former the most expensive, and very much more uncertain. The latter method is *sure*.

My course will be to pay no high price for any new bee. I prefer to go slow. I would rather be two or three years behind my more shrewd or luckily credulous contemporary once, than to be nine times a dupe.

Dowagiac, Cass Co., Mich., Feb. 10.

For the American Bee Journal.

A Chat with Adam Grimm.

M. M. BALDRIDGE.

About 14 years ago I had a pleasant visit with the late Adam Grimm, of Jefferson, Wis. He came to my house for the purpose of having a long chat on the bee question. I took a few notes of what he said on some of the topics discussed. As they may interest quite a number of your readers I now send them to you for publication.

Mr. Grimm stated substantially as follows: "Some years the basswood blooms in my neighborhood about 20 days, but this year there was only 1 day when the flowers secreted honey, and the bees did not gather more than 3 lbs., on the average, to the colony. After basswood harvest but very little honey is gathered for 10 to 15 days and during this time my bees will lose in weight from 8 to 10 lbs. per colony.

"This year I thought I would try the plan of moving my bees to different locations. As soon as the basswood was gone I moved 108 colonies 7 miles west of my home apiary to a buckwheat harvest of 60 acres on clay soil. One man prepared the hives and moved them in a one-horse spring wagon, in 4½ days. This buckwheat harvest lasted 16 days and the bees gained on an average, 15½ lbs. of honey. One colony stored 37½ lbs.

"Fifty-seven colonies were moved 4½ miles northwest of my home apiary to a buckwheat range of 30 acres, on low land, but they stored only 7 lbs. on the average; and will need feeding to keep them through the winter. There were 3 acres of buckwheat on high land, sandy loam, and the greater part of the honey was gathered from that.

"Towards the last of July I moved 57 colonies west of my home apiary 2½ miles to a buckwheat field on low land, containing 10 or 12 acres. These gained in weight 8 lbs. on the average.

"Fifteen colonies were moved the middle of August 5 miles southeast of my home apiary to 3 acres of buckwheat on high sandy land. They gained 12½ lbs. on an average, and some 21 lbs.

"Ten colonies were taken 2 miles southeast of my place to marsh flowers. These stored 10½ lbs. each. There was some buckwheat on low land but it gave no honey.

"Twenty-eight colonies were located 3 miles south near 2½ acres of buckwheat and about 10 acres of thistles. These gained 10 lbs. each. The buckwheat was on high, loamy land but it did not secrete much honey.

"Sixty-five colonies were left at home. They gathered honey from thistles and marsh flowers, and gained 10 lbs. each.

"My home location will support 1,000 colonies, in good seasons, when the basswood is in bloom—and I have not had a failure before in 20 years. There are two kinds of basswood where I live—one is white and the other red at the heart.

"In the spring I had an apiary of 121 colonies 3½ miles north of my home. These were increased to 190. Only 3 made box-honey and I shall have to feed about 20.

"Another apiary of 117 colonies 6 miles south, was increased to 185. Near this apiary was another, belonging to a neighbor, of 150 colonies. I had no white clover honey this year except from this apiary. White clover was in bloom there about 5 weeks and gave considerable honey.

"On the whole I think it paid me well this year to scatter my bees, as stated, for my home location was unquestionably over-stocked; 24 days in all were spent in preparing and moving my bees, and they were all carried in a one-horse wagon. At $5.00 per day the expense would be $120. I secured 2,780 lbs. of surplus honey, which, at 20c. per lb., amounts to $556, or $436 above expenses. It is my impression that this would have been lost, had all my bees been kept at home.

"I have just bought in Chicago 300 lbs. of rock candy, at 23c. per lb., with which I intend to feed 60 colonies. This candy is on strings. I shall put it in small boxes, with glass tops, with slats about ¼ inch apart, across the bottoms, and these I will put upon the tops of the frames, I will only put one box upon each hive as the German bee-keepers claim that 5 lbs. of this candy will winter a colony of bees from November to April. I intend to give the candy only to such as have 5 lbs. or less of honey.

"For the past 7 years my bees have been wintered in cellars, and my losses will not exceed 2 per cent. a year. Cellars with gravel bottoms are the best.

"Four years ago I tried to winter 48 colonies out of doors, under corn stalks, 3 feet thick; 38 were lost. They were so damp I think they froze. Had they been bottom side up and then covered with a ton or more of prairie hay they might have lived.

"My average number of colonies for the past 7 years has been 300, and my average loss in winter and spring before I began to winter my bees in cellars was 25 per cent.

"Young bees live mainly on pollen until they are 10 days old and should be allowed to fly before they are put into winter-quarters. My bees stop breeding by the 15th of October, and do not breed much in my cellars before the middle of April. They should then have brood at least 5 inches square. Bees winter better in old combs than in new ones,

"On the average my Italian queens do not deposit eggs before they are 9 days old and those bred from imported mothers not until they are 12 days old. Queens bred from imported stock are not as yellow as in subsequent generations and are also smaller. I do not believe that an Italian queen when fertilized by a native drone, produces *pure* Italian drones. The drones of imported queens are quite dark and the workers very cross. In very warm weather my queens will lay drone-eggs if not mated before they are 20 days old."

In the fall of 1874 I made Mr. Grimm a visit. He then had 15 apiaries con-

taining 1,158 colonies of bees. These apiaries were distributed over quite an extent of territory—from 7 to 9 miles from east to west and the same distance from north to south—his home apiary being nearly central. By thus scattering his bees he was sure of some surplus honey from a portion of his bees, no matter how poor the season might be. His crop of honey in 1874 from 700 colonies in the spring was nearly 26,000 lbs. He had at the time of his death in April, 1876, about 1,400 colonies of bees, which were reduced by sale to 700, and these were cared for, in part, by his son George. What his profits were for 1876 I cannot say, as I think they have not yet been made public.

It is my impression that the candy feeding experiment was a failure—having lost all or nearly all the bees that were thus fed.

Mr. Grimm had several cellars fitted up for wintering his bees, so as to save the trouble and expense of moving them back and forth from year to year. This he still thought was the only safe plan to pursue in wintering bees in northern climates.

During the last few years Mr. Grimm gave his whole attention to the production of honey and bees, and bred no Italian queens for sale. He believed that the hybrids were as good honey gatherers as the pure Italians and better for box honey.

The shrewd and enterprising reader may discover something in this communication that he can utilize and make profitable by its adoption.

St. Charles, Ill.

For the American Bee Journal.

Where Honey Comes From.

WILLIAM TRELEASE.

Honey, or at any rate the sweet fluid or nectar from which it is made, is collected for the most part from flowers, as everybody knows; and every intelligent bee-keeper can tell precisely what kinds of flowers are best suited to its production, some yielding much, others little, and others none at all. Did you ever ask yourself *why* this should be so; whether any particular organ exists in the flower for the performance of this function, and if so, how its structure compares with that of the other parts? Let us together ask this question of the flowers themselves. The first species we interrogate shall be one which is found in every house where flowers are loved—the scarlet geranium, or *Pelargonium*, as the botanists call it.

Carefully plucking a newly expanded flower by breaking its stem at the very bottom, let us note the parts of which it is made up: First of all comes the green or purplish flower-stalk or pedicel (e, Fig. 1), surmounted by five leaf-like organs, the sepals, which together make up the green cup or calyx in which the other parts of the flower are situated (c, Fig. 1). The uppermost of the five (c') is broader than the others, and an examination will show somewhere directly under it, on the flower stalk, a purplish bulb, from each side of which a faint groove may be traced to the corresponding side of the sepal (c'). This appearance is due to a part of the calyx which has grown down as a spur or nectary along the pedicel. Within the calyx

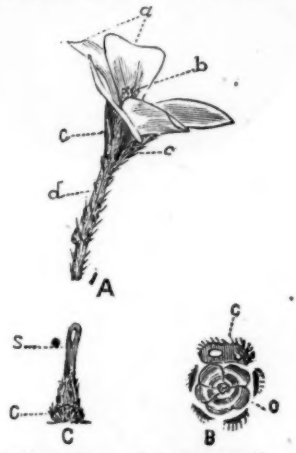


Fig. 1. A.—Young flower of scarlet geranium, natural size; B—pistil and calyx of the same flower, showing two openings into the nectary, magnified 5 diameters; C—the pistil seen from the side.

☞ In all of the figures a indicates the corolla; b, the stamens; c, the calyx; d, the nectary, or spur of the upper sepal c'; e, the flower-stalk or pedicel; p, the pistil; o, the ovary; s, the style; 1, the epidermis or skin lining the cavity or cavities of the spur; 2, that on the outside of the nectary.

are the five scarlet petals forming the corolla (a, Fig. 1), to which the flower owes its beauty, while within these are seven stamens, each composed of a white and pink scale or filament, tapering to a point above and surmounted by a small pink sac, the anther (b, Fig. 1), and filled with the brown pollen or male element of the flower. Surrounded by these stamens is the pistil or female organ of the flower, with its green, hairy base (o, Figs 2 and 3), the ovary, containing what are to become the seeds of the plant, and its white and pink upper portion, the style (s, Fig. 3).

Holding the flower-stalk in one hand, we gently bend the two upper petals away from the center, and see between

their bases and just outside the circle of filaments a depression containing in some flowers one, in others two small openings, of about the diameter of pins (c', Fig. 2), these lead into one or two slender tubes which run from this point to the bulb already noticed on the side of the pedicel, and are, indeed, the

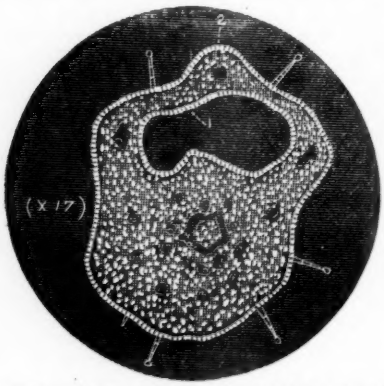


Fig. 2.—Cross-section of the upper part of the pedicel and nectary before the cavity of the latter divides into two, magnified 17 diameters.

doors through which insects must reach the nectar secreted in the lower part of the tubes.

To see the difference in the structure of the upper, non-secreting, and the lower, secreting, part of these tubes, it will be necessary, with a very sharp razor, to cut off thin sections of the flower-

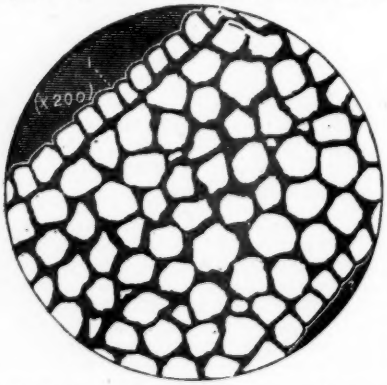


Fig. 3.—Part of the wall of the nectary at the same point, magnified 200 diameters to show the similarity between the epidermal cells on the outside (2) and those lining the cavity (1).

stalk and adhering spur at different points, and to study these with the microscope. Such a section, taken very near the upper end of the tube, and before it has divided, is represented in Fig. 3, magnified 17 diameters, and a small part of the same section is shown more highly magnified in Fig. 4. A glance at the latter shows that the cells (1) which line the cavity of the spur, differ very little in size or shape from those (2) which cover the outside of the spur. Fig. 5 represents a similar

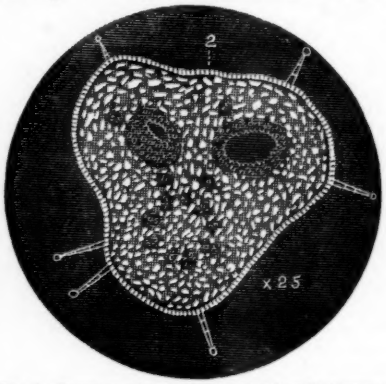


Fig. 4.—Cross-section of nectary and pedicel near the lower end of the former, magnified 25 diameters.

section cut just above the bulb, and a few of the cells which line the larger tube are shown more highly magnified in Fig. 6. The epidermis or skin on the outside of the spur does not differ materially from Fig. 4, 2, but it is seen at once that the cells which line the tubes at this place are very different from those which line them further up. Instead of being flat or slightly rounded,

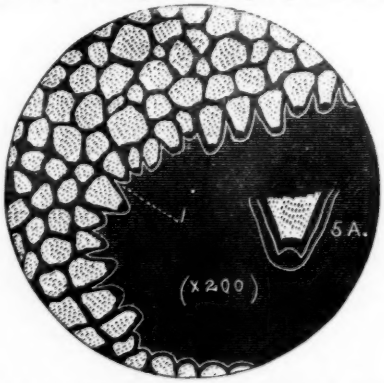


Fig. 5.—A portion of the same magnified 200 diameters, to show the form of the secreting cells (1); a—shows one of these cells magnified still more strongly, its protoplasm having shrunk away from the cell-wall.

they are conical in outline, and their ends project as so many little papillæ into the tube; moreover, their walls have curious thickenings at the apex of the cone, and the protoplasm or jelly-like substance that fills them is much

more dense and granular than in the cells higher up, because here it has to secrete the nectar. Where two tubes are found, both are similar in all respects to this description of the larger one, and where only one occurs it, likewise, has this structure.

One of the most beautiful studies in natural history is the homology of parts—the adaptation of an organ already existing to the performance of new duties; and it is interesting to notice here, that when our geranium flower needs a nectary no new organ is made, but a deep sac or spur is produced as a depression in one of the already existing sepals—much like the tube you could make in a piece of sheet rubber by pressing your finger into it—and no new tissue is made to secrete the nectar within this spur, but a little change in the layer of colorless cells that covers the sepal fits them for this work.

For the American Bee Journal.

The Queen laying in Surplus Boxes.

E. B. SOUTHWICK.

I notice an enquiry in the February AMERICAN BEE JOURNAL, page 98, from Mr. Anderson, of Lawrence, Ill., about the queen laying in the sections, when placed in the body of the hive. I generally start my sections in that way, and the queen has never occupied them for me. I always put on the tin separators, with the tin next to the other combs. I have frequently had brood raised in sections above, both drone and worker.

Mr. Church, of Springville, Wis., says he has a strip of wood in the center of his frames, which he thinks an improvement. I have used such in my frames for the last 3 years; made in this way: I have strips sawed like my frame stuff, only ⅛ inch thick; I put two of these, of the right length, placing a piece of my frame stuff, which is ¼ inch thick and about 1 inch long, between them at each end, and fasten them there with brads ⅝ inch long; and then fasten in the frame. They are a benefit in many ways. The comb will not break or sag much, and you can handle it with one hand without pressing your thumb and fingers into the comb. The bees can move from one end of the hives to the other without breaking the cluster, which I think is a great benefit in wintering; my succees in wintering I attribute in part to this form of frame, as I have not lost a colony of bees in the winter or spring since I have used this frame, and my hive. The frame has faults, but I will leave them for others to mention.

I took out about 500 combs while packing my bees last fall, and thinking they would not mildew in cold weather, I put them in the cellar; but it has been so warm this winter that they have mildewed, in part; where they were not filled with honey and capped over the capped part is free from mold.

Now will some one through the JOURNAL inform me if it will answer to use these combs in the hive, or what I had better do with them?

Mendon, Mich., Feb. 7, 1880.

[If given to strong colonies, one at a time, the bees will quickly clean them up. After a few days another may be given to them; but if too many are given at once, they may become discouraged and leave their hive.—ED.]

For the American Bee Journal.

Practical Hints to the Bee-Keeper.

H. T. COLLINS.

Have a hive record, either in the hive or in a memorandum book, kept for the purpose, and then you can always tell what you are about.

Let every frame be uniform and interchangeable and every hive the same, if possible.

Have a few bricks in the apiary and then when any hive wants early attention, indicate it by putting a brick on top.

FALL MANAGEMENT.

The honey harvest being over, the next important duty is to prepare for winter. After examining and equalizing the stores, you can generally tell the weight of honey in each hive by the following plan, for which I am indebted to my friend Prof. J. B. Turner, of this city. Provided the hives are nearly uniform in size and position, weigh two or three by platform scales, and then weigh them by a spring balance scale, which is done by attaching the hook of the spring balance to the top edge of hive, and pull (as nearly as you can parallel to the top of the hive) until it begins to tip. This shows the spring balance weight. Then by getting the ratio, you can tell about how much honey each hive contains. To illustrate, say the hive weighs by platform scale (the true weight) 80 lbs. gross, and by spring balance 16 lbs. gross; then 1 lb. per spring balance represents 5 lbs. of platform or true weight. If the hive and frames weigh say 40 lbs., then

deducting this from 80 lbs. leaves 40 lbs. of honey, and the hive is well supplied with stores. If any of the hives show (either by platform scale or spring balance), say only 60 lbs. gross, then they will have only 20 lbs. of honey, and will need attention. In weighing, during the winter or spring, whenever the spring balance loses 1 lb. of weight, the bees have consumed 5 lbs. of honey, and if any hive is running short, it can easily be found out. By putting the fall weight on the register, or still better on the outside of the hive, by chalk or charcoal, you can tell at a glance what hives will need attention.

WINTER MANAGEMENT.

To feed in winter or early spring (before the bees work out) I prefer to give them candy made of good coffee "C" sugar, with a little flour added before the syrup gets cold. Pour the candy syrup (when cool enough) into an outside prize box which has not been filled with comb, but the glass has been well glued to the box. Lay it on the table, glass side down, and fill as desired. By putting one or more of these boxes or "candy bricks" directly on the frames, and with the glass side up, of course keeping well covered and warm by the quilt and cushion, the bees will use it as they need it, and you can easily tell by the glass when they are empty. Furnish them at same time you give the candy, a 2-oz. panel phial of water, with wick to run by the side of cork in which a small notch has been cut Lay the bottle on the side and close to the candy. Be carefnl to have the wick fit pretty tight or the water will run out.

I find it a great convenience to mark on the outside of the hive or super, either with chalk or charcoal, the object sought. Say it is May and the hives have been prepared for the summer's work. The hives run for extracting are plainly marked "5-8 ext." which means this hive was prepared May 8th, with frames especially adapted for extracting, and when the time comes to extract it is a quick way to find what hive or hives you want to open.

Also for comb honey, the caps are marked "5-16 1 lb. sec." "5-25 2 lb. or prize box." "6-10 California sec." &c.

Where you take honey, either extracted or comb, note it down on the register; with a damp cloth wipe off the outside memorandum, and make a new record. Then it will be easy to see when this hive will probably be ready to yield more.

At the end of the season, add up the yield as shown by the register, you can easily tell which are your best workers, and the entire yield of the apiary. Keep the register so that it will show a debit and credit side, *i.e.* let one side of it show all you give the bees, and the other side show all they give you, and if you find any colonies that do not feed you, then you must feed them, which will be returning good for evil.

As I have greatly improved the retail section envelope, I send sample of same which please put in your interesting and valuable Museum, where I had the great pleasure last fall of spending two very profitable hours. All the bee-keepers are welcome to use them, and I think they will find them especially adapted to the nice sections, all in one piece, which I doubt not will be the coming box, but how is it to be used in or on the hive to obtain the best results? That is the question which I hope will be settled by the 1st of May next.

Jacksonville, Ill., Feb. 2, 1880.

[The new cover for 1 lb. sections sent by Mr. Collins forms a cheap and convenient protection, while retailing. It is duly labeled and added to our Museum.—ED.]

For the American Bee Journal.

Italian Bees in Russia.

CHAS. DADANT.

Mr. L. Sartori, an extensive manufacturer of bee-keepers' supplies, who lives at Milan, Italy, went to Kiew, Russia, to establish an apiary, with movable frame hives and Italian bees, on a large estate owned by Count Bouteurlin. The letter, sent by Mr. Sartori, while he was there, to the editor of the Italian bee paper, *L'Apicoltore*, containing an interesting account of the culture of bees and the customs of that far-off country, I translate for the readers of the AMERICAN BEE JOURNAL.

Mr. Sartori, after making a short allusion to the interminable length of the journey; to the wonderings of the Russian officers of the custom-house, on hearing of the arrival of Italian queens; to the kind reception bestowed on him by Count Bouteurlin, says:

"I have found here over 700 colonies in gums. These hives are about 2½ ft. high, 8 inches in diameter at the top, and 10 or 12 inches at the bottom. Nearly all are of the same dimensions. They are located on the borders of or within the woods, placed directly upon the ground, without any bottoms. On every one of them is placed an earthen vessel, to shelter them from the rain.

Two or three crosses of wood are fixed inside the gums, to support the combs.

"On the 1st of April (the 12th of the same month, according to our calendar), the hives are taken out of the stebuick. Then the combs are pruned to the first cross, to get wax, and the colonies are brought to their place on the ground. The bees then can find food on the hazel brush, the alders, and soon after on the fruit trees; and in succession on the rape, the flowers in the pastures, the linden, the white clover; in August on the buckwheat and the weeds in the fields, where they find a continual succession of flowers, extending as far as the eye can reach.

"The estates are very large; that of Count Bouteurlin being 20 miles in width by 30 in length, and there are no waste places, all is fields, woods, or immense meadows. There are several manufactories of bread, and two of beet sugar. These last manufactories give a net income of 15,000 roubles each, or $7,500.

"On about the 1st of September, according to the weather, the collecting in of honey is made. The hives are placed over a hole dug in the ground, filled with straw, which is kindled. The bees are thus smothered, and part of the combs fall down half-melted. Then all the contents of the gums are put in large tubs and brought to the house, to be sold to Jews.

"When the crop of honey is done, the gums selected to re-stock the apiary are lowered into the stebuick. The stebuick is a well about 30 to 36 feet deep, and 3 feet square. The gums, which on the ground were placed in a vertical position, are piled horizontally in the stebuick, their bottoms remaining open. The well is then covered with two or three boards, over about two-thirds of its opening. Over these boards a kind of straw hut is erected, whose door remains half-open. The bees stay in the stebuick for about 6 months. On the 15th of March the door is entirely shut up, to prevent the sun from warming the bees, which would become uneasy and fly out. Some colonies placed in the stebuick have only 15 lbs. of honey, while others have as much as 40 lbs. The owners do not care if their losses amount to 40 or 50 per cent., and they are unable to say whether the mortality is greatest at the top or at the bottom of the stebuick.

"They cannot believe that bees may starve; yet they think that 15 lbs. of honey is too little.

"As you see, there is something to be done to mend such a disorder, even before thinking of introducing greater improvements. The gums are sufficiently large, the more so, because some are placed over holes dug in the ground to give room to the bees for lengthening their combs. The blooming of the rape begins here on the first of June; ten days after the bees begin to swarm. These first swarms make 8 or 10 inches of worker comb, then some drone comb, then worker comb again. The result is, that bees here rear a great number of drones. During the blooming of buckwheat, the colonies which have not yet swarmed and the young colonies give swarms, which, in the buckwheat blossoms, find honey enough to make combs and for winter stores.

"The queens that I have brought with me arrived in first rate condition, and most of them would have endured another 20 days' trip. I was astonished at the small amount of honey consumed. I found one small box where no more than 10 cells were emptied of honey; the others were untouched.

"The sting of the Russian bee is more painful than that of the Italian; but these bees are more lazy than the Italian bees. They alight before stinging, and so give time to drive them away and avoid being stung. The Dutch are right in changing their bees for the Italians, was it not for other cause than the color.

"I have made 20 transfers from gums to movable-frame hives, in the garden of the house. In another apiary I had to examine 4 or 5 gums to obtain combs for a movable-frame hive, in order to get the necessary brood, and to leave enough to keep the colonies alive.

"To get the wax out of the combs they do not press it. They put the bag containing the melted combs between two boards, and press it by means of wooden wedges. There remains in the press 20 or 30 per cent. of wax, and even more, for sometimes the boards are too narrow, and the bag is pressed only in part. Thus they lose the greater part of the wax. The wax is worth here about 5 francs the kilogram (about 50 cents a pound). It is run in earthen moulds. The peasants buy it to make their own candles, to be sure that it is pure. They offer these candles in great quantities to the churches, for the salvation of the holy genealogy of the imperial family, for which they pray 12 times in their religious ceremonies, reciting 12 times, with the greatest respect, all the 60 or 70 names and titles, crossing themselves and striking the earth with their foreheads.

"In short, this country is first rate for bee-keeping. The bees, on account of the cool mornings and evenings, work only from 9 in the morning till 4 in the

evening; but their crop is abundant. A colony that I had transferred, filled all the upper story, which gave 10 combs of honey, in 14 days. I could have taken some from the lower story besides. Three other colonies did about the same.

"A prince here owns 3,000 colonies in 20 apiaries, and for 20 years he has kept this immense number of bees.

"I have selected some young men to give lessons in bee-culture. They were all only sons, because such are exempted from military service. They were selected young, because, if older than 20, it would be very difficult to break off old customs. People here work like machinery. Suppose that they were to come to Milan, and were shown the way around the place of the Duomo before entering the church, they would every time turn around the place to enter through the same door, never noticing that they might reach it more directly. These young men are docile, kind and obedient, and seemed proud when they understood how to do something.

"Nevertheless, this country is the 'promised land.' The ground is black, rich, and very fertile. All that nature produces is obtained here; but the 30° of cold in winter kills all vegetation. There are pear, apple, cherry and plum trees, etc., in great abundance, and very thrifty. But the peasants, although free owners of the soil, which the landlords were compelled to concede to them, work on the same principles, and with the same implements, that their forefathers did. They have wooden plows, with iron points and wooden wheels; their wagons are primitive, and so on. This country could be the America for our peasants, for most of the land remains untilled for lack of hands.

"The land here is about like the land around Rome. You can dig 300 feet down without finding a stone as large as a walnut. The lime, of which a great amount is used to whiten the insides of the houses every month, is brought from White Russia. For the smallest blot they whiten their houses—all the remainder is dirty.

"The peasants till the soil as did the first man, and they reap a great quantity of wheat. As soon as the work is done, they close up the crevices of their houses, and for six months they remain in a *dolce fur viente*. They stretch themselves without undressing on the floor, near the earthen stove, under buffalo robes, consuming all and more than they have reaped, by drinking brandy which they have bought from the Jews.

"We journeyed every time, from one apiary to another, in wagons drawn by four horses; for there are no roads, and the horses run amongst ditches, brush, thickets, to and fro, with the risk of tumbling every instant. Yet such accidents are very rare, the horses being well trained and the drivers very skillful.

"The sun seems to be warmer here than in Italy, yet a little shade is sufficient to remind one that he is in Russia. The weather is always very fair.

"L. SARTORI.

"Tagaucha, Kiew, August, 1879."

For the American Bee Journal.

Above-ground Cellar for Wintering.

DR. G. C. WOOD.

A cellar under a dwelling is always more or less damp, and often the sole cause of typhoid fever and diphtheria. An outdoor cellar may be placed wherever most convenient for use.

If the ground for the foundation is level, an eight-inch brick wall, one foot high, is sufficient. Upon this wall lay lay in mortar a 2x10 inch plank; the sleepers 2x6x8 or 10, supported well in the middle, flush with the lower edge, nail firmly a strip 1x2 in. on both sides; the studding may be any length preferred, but should not be less than 2x6 (2 x8 is better) in width; in the center and on each side nail a 1x2 inch strip. Put the sleepers in place and erect the studs, the foot should rest upon the foundation plank; spike the stud and sleeper together firmly. For joists, over-head, 2x6 or 8; on the lower edge, nail a 1x2 inch strip each side; having plumbed and equalized the studding, nail a 1x4 inch strip below the top, equal to the width of the joist; upon this strip rest the joists and spike them well to the studding. This constitutes the frame; now lath each side of the strips on the studs, and plaster the outside course, use the tar or plain paper and side up with ship-lap or siding. Plaster the lathing on the inside of the studs, lath and plaster on the studding as in a house, also overhead. Upon the strips of the sleepers lay a floor of any kind of lumber (old barrel staves will do) and fill in with mortar mixed stiffly, of wood or coal ashes, with the addition of about one-fifth of lime; lay the floor when the mortar is nearly or quite dry. A rough floor on the strips of the joists over head is next in order and a 1½ inch of similar mortar.

The cellar may constitute a back room off from the kitchen, or may be placed so near the house that a covered way, 4 or 6 feet, will connect the two, for housing bees during the winter. The cellar should, of course, be of

sufficient width to take in a row of hives on each side and two rows standing back to back in the middle, giving a passage-way on each side. The studding should be sufficiently high to take in two or more decks of hives. I prefer the Hicks hive to any other, as they open like a book, exposing both sides of the comb, enabling one to see at any time how the family inside gets along.

About 4 or 5 half-inch auger holes, top and bottom through the outside walls, and between each stud, will ventilate the air chamber sufficiently during warm weather; all may be stopped up during the winter. Our wall in the entire cellar is surrounded with double air-chamber. Milk and butter will keep cool in such a cellar without ice, and the air is so dry, in summer and winter, that the cream all rises; for storing vegetables, there should be a 4 inch brick wall partition. Tons of vegetables for stock may be kept and be always accessible. Such a cellar will never freeze. The doors and windows should be of double sashes. Over the upper floor, it may be finished off for lodging or store-rooms. Ventilate the cellar, between the studding, top and bottom.

Dennison, Iowa.

For the American Bee Journal.

My Plan of Wintering Bees.

CHARLES KELLER.

I use the Langstroth hive 16½x23 inches outside, containing 8 brood frames and 2 division boards. The latter I put up close to the brood frames, which are covered with ducking. On this I use a quilt, made of thin muslin with cotton batting filled in to make it one inch thick. The sides I pack with chaff; the ends are made double with ½ inch air-spaces.

The cap is 6 inches deep, and has a square hole of 1 inch at each end covered with wire cloth, for ventilation. Above the quilt I fill in with leaves, all but about an inch at the top. No frost ever gets into the hives when prepared in this way.

If the bees have a plenty of honey they will winter successfully every time. I have used it successfully for 4 years.

I commenced in the spring of 1876 with 4 colonies; increased to 22, by artificial swarming, and did not lose a colony in the following winter. In 1877 I increased to 43 and again wintered without loss. In 1878, I increased to 78, and 6 nuclei, 3 of the latter starved, as I had moved 6 miles from the apiary I could not be with them in the spring. One colony became queenless, one was robbed, and one smothered. My loss therefore in 4 years being but 6 colonies and that was my own fault. I now have 102 colonies in my care, all in good condition. They are breeding now, and prospects are bright for a better honey season than the last.

Gibson's Station, Ind., Feb. 4, 1880.

For the American Bee Journal.

Theory versus Practice.

A. E. WENZEL.

The various articles in the valuable BEE JOURNAL from time to time, from the pens of specialists in the science of bee-keeping, I always read with much interest, as I am looking for more light; but frequently some production shows ignorance of facts upon its face, indicating that the author has but little knowledge of the subject on which he is writing. We know well that editors do not hold themselves responsible for the sentiments or ideas advanced by correspondents, in the best organs of any special industry. Some of these frequently strike a novice as very learned, but to the older heads, who have been "through the mill," they are calculated only to produce a smile.

Those persons of one idea, for instance, who figure all to get a honey-rack into place upon a hive, think it the *ultima thule*, and would laud that fact with circus-bill demonstrations of weighty adjectives, giving color to that preponderating idea, with more than Pythagorean glory, of the discovery, concerning which he wildly exclaims, "Eureka!"

Experience has taught us that without ingenuity to adapt the circumstances of one branch of our industry with another, that some would-be apiarists, by their advice (mostly through interested motives), have frequently brought consternation upon their unsophisticated brethren. But the AMERICAN BEE JOURNAL is striking sledge-hammer blows at the foibles, as one of the "varieties which make up the spice," while plodding along "allee samee."

The above is written partly as an apology for trespassing upon the editor's valuable time, by sending him last month, for perusal, a missive which he returned, originally sent me by a party explaining the points of a hive which I would not give the pleasure of recognition, because it was positively vulgar in its self-laudation.

Callicoon, N. Y., Feb. 8, 1880.

Conventions.

Rock River Valley Convention.

The bee-keepers of Davis Junction, Ill., and vicinity, met pursuant to call. G. W. Frasier was called to the chair. It was voted to organize an association to be called the "Rock River Valley Bee-Keepers' Association." After some preliminary business, it was adjourned till 1 o'clock, when the following officers were duly elected for the coming year:

President, A. Rice; Vice President, J. C. Evans; Secretary, D. A. Fuller; Treasurer, H. H. Everton.

Constitution and By-Laws were then adopted.

Mr. Lucas asked if any member had fed in the spring, so as to make it profitable?

Mr. Evans thought it paid him to feed a little honey early, to stimulate.

On the subject of "how to winter successfully," Mr. Everton was called for, and said that he put his hives in a row, on 2x4 scantling, facing the east; boarded up on the back, then packed all around them with chaff and straw; and never lost any when prepared in this way.

Mr. Lucas preferred the cellar.

Mr. Evans thought that the reason for so many dying in winter, in the cellar was the want of upward ventilation.

Mr. Cumming asked if any one had experimented as to which takes the most honey to winter, out of doors or in the cellar.

Mr. Lucas said that the cellar takes the least honey, and to keep them there until they can work in spring is a sure preventive of "spring dwindling."

Mr. Morse asked what was the best food for bees.

Mr. Everton thought rye flour and honey the best.

The President described how he fed his bees, using a goblet with a piece of cloth over the top, turned down over the frames; he feeds syrup made of sugar and water.

Mr. Everton uses a lamp chimney, which he can fill without removing.

Mr. Frasier preferred the Shuck feeder.

Mr. Lucas then gave his plan for catching swarms, as follows: He takes a long stick or pole and ties on the end of it a bunch of mullein heads. When the swarm is about to cluster, he holds the mullein heads amongst them and they immediately cluster on them; he then carries them to the hive.

Mr. Frasier asked for the number of colonies each member had in the spring, increase, surplus honey, and manner of wintering.

	Spring.	Increase.		Surplus.
Mr. Frasier	18	10	Wintered in cellar	None
G. & D. A. Fuller	45	20	" "	1000
Mr Lyman	8	6	" "	175
J. C. Evans	8	5	" "	160
Eber Lucas	15	20	" "	1200
O. J. Cummings	9	6	" "	
A. Rice	20	30	" "	200
H. H. Everton	18	10	Packed in chaff	700
W. Morse	7	3	" "	

The question of "How to Italianize" was answered by the President, as follows: Catch the black queen, cage her one day before removing, then put in the Italian queen, with one end of the cage filled with leaves; when the bees want her they will pull out the leaves, and thus liberate her.

It was voted that the next meeting be held at Davis Junction, May 18th 1880.

D. A. FULLER, Secretary,
Cherry Valley, Illinois.

Read before the Indiana State Convention.

How to Succeed in Bee-Keeping.

REV. M. MAHIN, D. D.

As this is a Convention of bee-keepers, I presume that all are interested in the best means of securing success. And though I do not pretend to rank with the great bee masters of Europe and America, I think I can make some suggestions which will be of advantage to those who have less experience than I have had. I began bee-keeping 10 years ago, and I have been an amateur and enthusiast ever since. I have read nearly all that has been written or published in this country on the subject, and have had a somewhat large and varied experience.

I have given everything pertaining to bee-culture very careful attention, and I have been as successful as any of my acquaintances who have been in the business. There was a time when I was more ready to dogmatize than I am now. Experience has taught me to be modest in my claims as to a knowledge and mastery of the subject.

The first thing necessary to bee-keeping is a hive. Bees cannot be kept without something to keep them in, and experience has demonstrated that in these wide-awake times, when competition is so sharp, it will not do at all to keep bees in the old box hives and log gums. We must have movable-comb hives, and to be successful we must have the best attainable. I shall not enter largely into the discussion of the hive question. There are many good hives now before the public, and any one of the good ones will answer

the purpose. I would not advise any one to pay for a patent right. Everything necessary to a good, movable-comb hive is now, and has been for years, public property, and the patent features of most at least of those that are still covered by patents, are attachments that may be left off, not only without detriment to the hive, but with positive advantage. The simplest form of movable comb hive, in my judgment, is the best. I want no movable sides, no metal corners, no moth traps, nor any other expensive and useless attachments.

The next requisite to successful bee-keeping is bees. A man who has no bees cannot keep them, though he may have ever so good a hive, and there is a great difference in bees, as well as in hives. There is a difference in the qualities and profitableness of different families of black bees. Some are more vindictive and more difficult to manage than others. The difference is not only in the treatment they have had, but in the blood. The same is true of Italian bees. While as a rule they are more peaceable and every way more easily handled than black bees, there are exceptions to the rule. Occasionally we find a colony of well marked and apparently pure Italians that are crosser than the average blacks, with this difference, that they are quiet and peaceable until they are disturbed.

Having had nearly 10 years' experience with Italian bees, I give them a decided preference over the black race, and advise all who have not already done so, to get them. And as there is a great difference in the qualities of different strains of Italians, get the best, without regard to expense, and keep no others.

In successful bee-keeping, more depends on the bee-keeper than on the hive, or the particular strain of bees. In order to succeed in this pursuit, a good degree of intelligence is indispensable. But a man may be intelligent in other things, and yet be a flat failure as a bee-keeper. He must become thoroughly acquainted with the natural history of the bee. He must be so thoroughly acquainted with bee instincts as to know with approximate certainty just what the bees will do in any given circumstances. He must be familiar with the entire internal economy of the hive, so that if anything is wrong he can ascertain what it is and apply the remedy.

I do not believe that any one will succeed as an apiarist who has not a genuine love for bees. The successful bee-keeper must feel enough interest in his bees to know at all times, winter and summer, their exact condition, and he must be careful to do for them what needs to be done, and to do it at the right time. If bees are to be left without further attention than to "rob" them when they have more honey than they need, then the best hive (beyond comparison the best (is a section of a hollow tree, with a board nailed on one end for a honey-board, and a box on top for surplus honey. People who have no skill in handling bees should adhere, by all means, to the old methods.

Logansport, Ind.

Southern Michigan Convention.

The annual meeting of the Southern Michigan Bee-Keepers' Association was held in this city on Feb. 6, 1880; about 20 apiarists being present. The number of colonies reported on hand last fall was 442; increase during the past season was 300, largely by artificial swarming. One man had 129 in the fall of 1878, and but 1 left in spring of 1879. He purchased 8, and increased to 78 colonies.

Those present reported 228 colonies packed in chaff on the summer stands; 129 in cellar; and 45 out of doors. As near as I could estimate, the crop of honey in general was not more than one-third as large as in 1878.

All the officers of 1879 were re-elected. The interest in bee-keeping is increasing and we hope to make a better report during the coming year.

Adjourned to meet on the first Wednesday in May next, at 10 a.m.

B. SALISBURY, *Sec.*

Battle Creek, Mich., Feb. 15, 1880.

North Eastern Convention.

[The following Report is condensed from the Utica daily papers. We omit some of the discussion, and all the essays for want of room, as the copy was not received from the Secretary until this JOURNAL was nearly all "set up."—ED.]

The Northeasten Bee-keepers' Association met at Utica, N. Y., on Feb. 11, 1880, at 1 p.m., Pres. L. C. Root in the chair. The annual Reports of the Secretary and Treasurer were read and filed.

Several gave their experience during the past season and then the Secrerary read a paper on the "Improvement of the Italian Bee," by A. F. Moon, of Rome, Ga.

This evoked some discussion upon the merits of Italians as compared with the native bees. Some being loud in their praise of black bees, Mr. N. N. Betsinger remarked: "We have several

bee papers afloat, and the question often comes up which is the best paper. Unless we read them all, we will not know. Many men take bee papers a whole year, but do not read them. I am surprised to see men who, according to their own story, have kept but few Italian bees condemn them. I thought the bee question was settled many years ago; and everybody knows that the Italian is the best."

The President said it was annoying to see the unqualified assertions made in the bee papers in favor of the superiority of Italian bees. There are many points of superiority in the Italian bee, but it was absurd to claim all the superiority for them. Italian bees had been bred out, and the stock had not been kept pure. The fact that people introduced Italians led them to investigate more closely and take better care. I claim that it is an advantage to a beekeeper to have both kinds. The question is, if we have two colonies in the spring, one of each kind, which comes out the strongest? The idea that Italian bees will not rob, is wrong. I have found that the Italians will not only find honey quicker, but take, comb and all, when the natives are satisfied with the honey. Italians work best on some kinds of blossoms, and natives better on other kinds, for this reason it is better to keep both kinds. It cannot be doubted that the Italians are not as easily disturbed as the natives, and this is much in their favor. I have known Italian bees to work right along getting white honey when the natives are getting dark honey. Any man who, in this advanced age, has not taken enough interest in the matter to keep at least one colony of Italians, is decidedly behind the times. The number of drones should be limited. I have paid as high as $20 for one queen, and have thought it profitable. This idea of rearing queens in hot-houses and nurseries has been carried too far. This buying "dollar queens" I do believe is cursing the Italian stock. We want to rear them purely. We can better afford to pay $5 for a pure queen, reared under proper circumstances, than we can afford to take one of these "dollar queens" for nothing. We should take the queens that have been tested, and breed from them whatever the cost. The fact that the Italian bee fills the cell fuller, and caps it over directly on the honey, leaving no air, is a great advantage for the keeping qualities of the honey. I believe every man should keep both kinds and then test for himself. I have tried them in this way, and the results have been in favor of the Italians in thousands of instances. It is no wonder that these "dollar queens" run out so soon. It is a pity they did not run out sooner. With the large number of native drones allowed to accumlate in the hive, the wonder is not that there are so many native, but that there are no more.

An adjournment was had until the evening, when a discussion was entered into on the proper size of a colony of bees on the first of May. After some discussion, the following motion passed:

The Northeastern Bee-Keepers' Association in Convention assembled, do hereby adopt as a standard for a colony of bees, on the 1st day of May: They shall occupy at least four spaces. Colonies occupying less than four spaces shall be termed and known as nuclei.

Mr. Edwards. How many spaces must the bees occupy at the beginning of the honey season, to warrant us in expecting box honey?

Mr. Betsinger. It takes about four quarts of bees to take care of the things below—the kitchen work. All the bees you get above this number go to make box honey. One way to guess at the number of bees, is to measure them when you shake them into a basket to hive them.

Mr. Alexander. I have never obtained box honey till the hive was somewhat crowded with bees, whether it was large or small.

Breeding Queens.

Mr. Edwards. What is the relative value of queens, as reared under natural swarming impulses, compared with those reared artificially? By difference I mean longevity and the other good qualities we all want; by artificial, I mean those reared by compelling bees to breed when they would not do so ordinarily.

Mr. House. I have used cells, and my experience is that there is not much difference. A queen reared when a swarm is cast off naturally is a size larger; she has a larger abdomen, but there is no difference otherwise. The cells must be cut from a full colony. I can discover no difference.

Mr. Alexander. I have had as good queens reared artificially as in the natural way.

Mr. House. It makes some difference with an artificial queen if reared in the spring. A queen reared in the middle of May, or earlier in the spring, is not as good as one reared later. The best time for rearing queens is from the middle of May to the latter part of June. Queens reared in the fall—August or September—I have had as good success with as those reared at any other time of the year.

President Root. The reason why the queens reared in full colonies are better, is that such a colony must be an extra good one, and must afford all the essentials for rearing a good queen. The egg deposited is exactly the same, and it is hatched just the same as if the bee is a worker. There are persons who say they can rear a better queen by supplying only eggs and the larvæ, and these get more attention in this way than when there are other bees. I do not believe this. We should breed when there is a flush of feed, and in the swarming season. There is a reason for later queens being good. We can get our stock purer in this way. We make a colony queenless and the drones are destroyed. If our queens are reared late in the season, when it is colder, that is against them. I do not believe it makes any difference whether the egg is deposited in the cell for the queen or not.

Mr. Betsinger. A double-handful of bees in a small box will rear a queen just as well in the summer. I have known of queen cells being built outside the hive—on the under side. This was done with the thermometer at 90°. Queens reared artificially, I can prove, are just as good as those reared naturally. Take a hive with a dozen or more queen cells, and graft in these natural cells; under what condition would these be raised—natural or artificial? They would ordinarily have been workers. There can be no difference in the result. Queens, naturally, are reared in 3 or 4 weeks; artificially, they are reared in a much longer time.

Keeping Comb Honey.

Mr. Waters. What is the best mode of keeping box honey after taking from the hive. whether in the dark or light, whether cold or warm?

Mr. Betsinger. My experience has been to lead me to keep honey in a warm place. I never let the temperature go below 80°. From 90° to 95° is about right. I keep the honey in a dark room, as it keeps it lighter colored. Keeping honey in a warm room makes it thicker and heavier. I do not care if every cell is unsealed, the honey will become so thick that it will not run out. When the temperature goes below 60° the honey gathers moisture, and is thin.

Mr. Alexander. I prefer keeping honey in a dark warm room, but not as hot as Mr. Betsinger advocates.

Mr. House. The higher the temperature is kept, the heavier, thicker and less liable to break, the honey becomes. I keep my honey in a warm room on the south side of the building. Honey needs a pretty high temperature to cure well. It will be better flavored and keep better in a warm room.

Mr. Waters. The greatest trouble is with the moth worm where kept warm.

Mr. House. Some writers claim that honey should be brimstoned. I am not in favor of this. After taking out your honey, put it in a room where the millers cannot get at it, and you do not need brimstone. It injures the flavor of the honey to use brimstone. Italian bees will not allow millers to get in. Natives allow millers to get into the brood-chamber.

Mr. Betsinger. The miller is in the comb. A little brimstone is necessary. I put it under the honey which stands two feet four inches from the floor. Put a piece of tin under the honey to prevent the honey or house catching fire. After lighting the brimstone, shut the doors, and leave it 24 hours. Treat the honey thus every 4 weeks. Do not use too much brimstone. No definite amount can be given. The amount must be determined by experience. By treating honey thus you can keep it almost forever.

The President. Has Mr. Betsinger had any bad effects from over-heating?

Mr. Betsinger. Only from foundation comb. This will crumble at 135°, where natural comb will stand.

The President. I had intended to bring with me a box of honey placed in a warm room, and cured too rapidly. There is no question that the honey was injured. I am not in favor of very warm rooms. In my judgment we want a moderately cool room. I think the largest honey raisers do not prefer warm rooms. I am not an advocate of brimstone. It is not often that I find it necessary. Mr. House's experience is that of very many of our best bee-keepers. Such boxes as seem to be affected should be kept away from the rest. I should prefer a moderately warm and very dry room. Mr. Hetherington who raises honey by the ton, does not find it necessary to use brimstone. If we use a very warm room, we shall be obliged to use brimstone.

Mr. Snow. Boxes that contain anything darker than ordinary honey, I put away, and use brimstone on. I keep my honey up stairs, with a wire screen at the window. It is dry and warm.

Mr. Betsinger to the President. It makes no difference how white the combs, are about the moths hatching. Of course they will hatch quicker where there is pollen. Mr. Root objects to keeping honey in a warm temperature. but does not state his objections. He knows, however, that the temperature best for bees, from 97° to 102°, is best for honey. Imitate nature.

Mr. House. Where men have been bothered with millers, I think that the trouble is with themselves. Keep no old combs in the hives; keep the hives clean.

Mr. Betsinger, to the President. In sulphuring the honey it does not kill the eggs. You cannot kill the eggs. The eggs will hatch at 80°.

Mr. Alexander. I think the eggs will hatch at a much lower temperature.

Mr. House. I think they will hatch at 45 or 50°.

Mr. Betsinger. There are two kinds of worms, one of which, of a reddish color, hatches at a lower temperature.

Adjourned till 9 a. m.

Met at 9:30 a. m., on Feb. 12th. After appointing some committees, two essays on "Swarming" were read. They were by A. B. Weed and D. D. Palmer.

N. N. Betsinger. I can not see that any new ground is assumed.

President Root. New ideas are what we are in search of, and Mr. Betsinger is the man to furnish them.

R. Bacon. These papers take the ground that I took several years ago.

After some discussion on this topic, the Secretary read an essay entitled, "A Neglected Field," by H. A. Burch. The paper suggested that the honey trade ought to be more concentrated, and only one or two houses in each city engaged in it. This would give greater uniformity in prices. This also gave rise to a discussion.

President Root. As was suggested by Mr. Burch, why would not a committee appointed by the Convention be a good plan, to report to bee journals on this subject? If we have men who have the time and means to investigate this matter, we can give them a big job.

A. G. Thurber. The honey business should be concentrated. We have found that small consignments have in great measure hurt our market. The time is not far off when honey will become more staple; but before that, producers have got to put up stock more uniformly. If we can adopt a more uniform style of box, and get a certain number of combs in the box, it would be much better for the trade—boxes as nearly the same weight as possible. You can just as well make an even 24 lb. box as 24¾ lbs., by placing in light or heavy combs as required. I do not believe in having commission men compete in bee-keepers' goods. As soon as the business gets down to buying and selling only, we stand ready to take hold of it.

The Secretary moved the appointment of a committee to carry out the objects of the paper of Mr. Burch.

Adjourned to 1:15 p. m., when all the officers of the Association were re-elected. Rome was selected as the place, and the first Wednesday in February, 1881, as the time for the session of the next Convention.

The President then delivered his annual address, which was a dissertation upon the "Best Method of Increase."

Mr. A. G. Thurber then addressed the Convention on the subject of "Marketing Honey." He recommended a uniformity in the style of preparing honey for market, and of grading it.

The Secretary then read his paper entitled, "Past Events," after which some resolutions were passed, when the Convention adjourned until evening, which was devoted to an examination of the articles on exhibition, and receiving explanations from the exhibitors. Articles were on exhibition from the following persons: J. H. Nellis, A. J. King, C. F. Muth, L. C. Root, J. Van Deusen, J. Y. Detwiler, Mrs. Dunham, N. N. Betsinger, H. H. Cheney, J. E. Moore, J. Hoffman and A. G. Thurber.

Feb. 13.—At 9:30 a. m. the Convention met; Vice President Clark in the chair.

The prize essays were then read on "The Races and Different Crosses of Bees," by Julius Hoffman, and "Comb Foundation," by Mrs. Dunham and J. Van Deusen.

After some discussion, President Root said:

I have tried foundation in almost every way. The fact that 100 combs were well sealed would not prove its grand success. What we want to know is whether, all things considered, it is profitable to use. I claim that it is so. We secure straight, handsome combs; straighter combs than in any other way. I think we need something in the brood case to prevent sagging, but it wants further testing. I should not advise using the foundation in brood without wires. As to comb in boxes, I have taken ground in my book against it; but if I were to express my views to-day, I should modify my opinions. That is because so much improvement has been made in its manufacture. I am opposed to having the foundation built out in the hives. It makes extra work. As to the amount of foundation to be placed in the box, it should reach from the top of the box so nearly to the bottom that the bees can reach it.

[The afternoon session was devoted to the awarding of prizes and answering of questions, for which we have no room left in this issue of the JOURNAL. These, together with the essays, we may give hereafter.—ED.]

Letter Drawer.

Gibson Station, Ind., Feb. 2, 1880.

I commenced the season of 1879 with 72 colonies; increased to 112, and obtained 1800 lbs. of comb honey and 700 lbs. of extracted. It was a very poor season here. CHARLES KELLAR.

Lizton, Ind., Jan. 27, 1880.

My bees are flying freely this week, and I shall stimulate them. If the weather remains favorable, my hives will be full of brood by the time the apple trees blossom.

JAMES H. O'REAR, M. D.

Glasgow, Scotland, Jan. 8, 1880.

Bees and bee-keepers are very quiet, at present; the bees are getting along very favorably. It is very gratifying to notice the wide-spread influence and circulation of the excellent AMERICAN BEE JOURNAL. May it long enjoy the position of leading all the publications in the world on apiculture.

JOHN D. HUTCHINSON.

Fredericktown, O., Jan. 24, 1880.

My bees are wintering nicely, they have had frequent "flights." My experience proves that there are two main causes for bees dying in winter: Long confinement, and old queens. Last winter I lost ½ of my colonies, but not one died that had a young queen. I do not think the food has any thing to do with the disease. All had the same food, and yet some colonies died while others did not. If poor food was the cause, why did not all die alike? I will not winter a colony with a queen over 2 years old. J. DUNCAN, JR.

Ashland, Mo., Jan. 27, 1880.

Our honey crop last year was a total failure. My bees are in fine condition and wintering well, but it would be strange if they did not, as I never lose any in wintering. I have 130 colonies and have kept just about that number for several years, never varying more than a few. The losses in Missouri will be fearful this winter, and spring; many large apiaries are now all dead, from starvation. The losses are much the heaviest among the black bees; they will nearly all die this winter. The past season has shown the immense superiority of Italian bees over the blacks, especially the most improved families. The best Italians are generally in good condition and will winter well. E. C. L. LARCH, M. D.

Council Bluffs, Iowa, Feb. 5, 1880.

I am a beginner in bee-keeping; I have 3 colonies of black bees in movable-frame hives. Moth worms troubled me very much last summer, but by going through the hives carefully three and four times a week, I kept them down. I often found patches of brood about to hatch, that had been uncapped; some young bees were dead, some maimed, wings torn or entirely gone; the cells often destroyed (that is no partition between the bees), sometimes a piece of comb 3 or 4 inches in area would crumble out, leaving a hole clear through the comb. The dead bees were usually of a gristly white color, though some were quite black. The dead bees and also the maimed, were carried out of the hive by the workers, and often the combs were repaired. Can you tell me what was the cause of this? I have thought that the moths were to blame, but I now fear that it may be a light form of foul-brood. There was no bad odor about my bees. If I have anything like foul-brood I do not wish to be at the expense of Italianizing my bees. Please answer in BEE JOURNAL.

M. M. FAY.

[It certainly is not foul brood. The destruction or crumbling of the comb indicates the work of the moth worm—nothing more.—ED.]

Garden Plain, Ill., Feb. 4, 1880.

There will be a heavy loss among the bees that swarmed considerable last season. I am building a new workshop and creamery, and I expect during the coming summer that my place will "flow with milk and honey."

R. R. MURPHY.

Poplar Bluff, Mo., Jan. 21, 1880.

This is a fine locality for bees. As a general thing bees in this country pay but little attention to buckwheat bloom there being such a vast amount of other blossoms. I extracted 220 gallons of honey from 58 colonies last spring. I now have nearly 200 colonies. I bought over 100 this fall and winter; the most of them are very strong; quite a number are full of bees from side to side of the hive, across 10 combs. My bees are carrying in pollen every day and have been ever since January 5th. The queens are filling the center combs with brood as though it was April; I never before saw them so early rearing brood. I expect soon to commence stimulating them, until honey gathering is plenty so as to have them strong in numbers for the bloom; this is half the battle in bee-culture. W. N. CRAVEN.

Jonesboro, Ill., Feb. 3, 1880.

In the BEE JOURNAL for January I noticed an article on honey-dew written by Prof. A. J. Cook. About the 7th of last May, I noticed the glands he speaks of, on my peach trees. My attention was called to them by the great number of bees which frequented my orchard. The glands were situated upon the stem of the leaves, and were sometimes very large and all of them kidney shaped. The bees worked on this secretion till the end of May, when the poplar (tulip) tree bloomed. In August I noticed the same thing on the willows, but the bees did not work on them; only the yellow jackets, wasps, hornets, &c. The dew from the willow was of a very bitter sweet taste, that from the peach was very white and sweet. I intend to pay more attention to it next summer and will send Prof. Cook specimens of the leaves.

W. J. WILLARD.

[Such observations as the above will advance our art. Let us all be on the look out for these secreting plants. The glands are easily seen, as they are considerable elevations on the stem or blade of the leaf, and cannot escape close observation. The obvious tell-tales are the bees or other sweet-loving insects, which are attracted by the secreted nectar. The question is definitely settled that there is real honey-dew or special secretion from other parts of plants than the flowers. Let us see from what plants.—A. J. COOK.]

Crown City, O., Feb. 3, 1880.

On peeping out of the window this morning, over my apiary, to my surprise I discovered 6 inches of snow, making every thing look gloomy, after my bees had been, during January, bringing in pollen. Luckily 60 colonies were housed, since the last of December. Eleven were on the summer stands in 10 frame American and 10 in Langstroth hives, packed with white pine saw-dust, on the top and sides, all with plenty of honey, except 6 in-doors. I have read different modes of transferring. Now here is my plan: after the comb is taken from the old box, place the frame on the table and cut the pieces to fit; then turn the frame upon the broad side (speaking of American frame), and with strong spool thread wrap around and around, as often as need be, and carefully place them in the hive, and by the next day, the bees will cut the thread and carry it from the hive, thereby saving much trouble in taking clamps, and many other things used, from the hive. I have tried pegs, and hair wire, but give me the thread (200 yards for 5 cents). Our honey crop failed last summer, so I turned my attention to stocking my apiary with young queens. CHAS. S. NEWSOM.

P. S.—Bees are getting pollen to-day (Feb. 10), while the north hill-sides are covered with snow, and have been for a week. C. S. N.

Rockton, Ill., Feb. 8, 1880.

I see by *Gleanings* for February that Novice takes credit for the queen cage Prof. Cook took to Washington. I also see in the BEE JOURNAL that J. L. Harris is the inventor. Is he connected with *Gleanings?* Bees are doing finely in Northern Illinois. They had a number of good flights in January, which we think will keep them from spring dwindling. The honey crop was light last season, and there is no surplus honey left here. D. L. WHITNEY.

[The ruling of the Postal Department on the subject of sending queens in the mails may be found on page 121. The cage we sent by Prof. Cook to Washington, was the one made by Mr. J. L. Harris. He is not in any way connected with *Gleanings.* Novice also sent one, but Prof. Cook says, speaking of the Harris cage, "I think yours the best." He adds, the Novice cage "is stronger but weighs more." We have not seen the Novice cage and cannot therefore speak of it, from personal knowledge. The point of special importance is never to use honey in these cages, for feeding the bees, and to be sure to use the cage having the double-wire-screen cap. The Harris cage is now made much stronger than before.—ED.]

Park Hill, Ont., Feb. 9, 1880.

My bees are on the summer stands, packed in shavings from a planing mill. January was very mild, and the bees had a good fly. I think they will winter well now. D. P. CAMPBELL.

Fiskburg. Ky., Jan. 24, 1880.

I began the winter with 21 colonies, they are wintering well, so far. I have only lost one queen, as far as I have examined. I am wintering on the summer stands. We have had a very mild winter up to date; very wet and warm. Success to the AMERICAN BEE JOURNAL. J. F. ELLIS.

Watertown, Wis., Feb. 6, 1880.

From an editorial article on the "Sections all in one piece" on page 70 of the February number, the "public" may be led to think it is necessary to glue them. We do not recommend it, and all seem to be pleased who use them without glue. LEWIS & PARKS.

[We did not intend to convey the idea that glue was *absolutely* necessary. Of course they can be used without; but glue adds exceedingly to their strength. Perhaps experience will prove, however, that they will be sufficiently strong without—that the bee-glue will be all sufficient.—ED.]

Dundee, Ill., Feb. 11, 1880.

I have 84 colonies of bees in the cellar. They seem to be quite easy now, but have been very restless. Last season was a very poor honey season. I obtained about 1,600 lbs. from 30 colonies. I was obliged, on account of the extreme dry weather, to feed considerable of it back to them for winter. When they become uneasy in the cellar would it do, some warm and pleasant day, to let them have a fly, and then put them back? I am very anxious for spring to come, so that they can be put out. FAYETTE PERRY.

[Yes; it would be best to do so.—ED.]

Embarrass, Wis., Feb. 10, 1880.

We are having very mild weather for January, and there has been 3 flights for the bees; they are wintering finely so far. The average temperature for the month is 27°. We have had snow about one foot deep, and splendid sleighing. I was pleased to learn that the P. M. General had decided to let queens pass in the mails again, as I am so far from an express office that it is a great inconvenience to be obliged to depend on it to get queens, &c. Success to the AMERICAN BEE JOURNAL, and here is to the health of the Editor in nice honey, but not in any thing stronger. J. E. BREED.

Salamonia, Ind., Feb. 13, 1880.

My thanks are due to Prof. Cook and the committee appointed by the National Association at Chicago, for the results of their exertions to get queen bees again admitted to the mails. I read the last number of the AMERICAN BEE JOURNAL with more interest than ever. It increases in value with every number. My bees did well last season, but I lost 13 colonies during the previous winter, out of 18; the 2 remaining I increased to 15, and traded hives and queens for 4 more making 19, and obtained 250 lbs. of honey, mostly extracted. They are doing well so far, this winter. I wish all success to the BEE JOURNAL. DAVID R. KNOLL.

Fuller's Station, N. Y., Feb. 4, 1880.

On Dec. 5, 1878, I put 73 colonies in my bee-house; I lost 2, and united 2, leaving 70 with which to commence the season of 1879. I have sold 6,151 lbs. of unglassed comb honey and 488 lbs. of extracted, total 6,639 lbs. On Nov. 27, 1879, I put 83 colonies in the bee-house and left 19 on the summer stands.

W. S. WARD.

Burlington, Iowa, Feb. 11, 1880.

My bees have wintered well in the cellar. I shall have to feed considerably in the spring. I have 35 colonies. Thousands of colonies, in this locality, will perish for want of supplies before fruit blossoms come to their relief. If good syrup, made from "A" sugar will save mine, they shall not die.

I. P. WILSON.

Anderson, Iowa, Feb. 6, 1880.

The JOURNAL for February is here and much of its contents perused. How rapidly time flies; nearly a year has passed since I spent a day at the office of the JOURNAL, and closely examined its Museum of bee-keepers' supplies. I remember with pleasure the editor's kind and patient pains-taking, enumerating the advantages claimed for each article—for all of which accept thanks. How easy it is to write the accounts of the doings of the busy little workers when we sit in the sunshine of a golden harvest, but when heavy dark ones shadow a year's labor, how different? The year 1878 was a sunny one in this section, but in 1879 the clouds of disappointment never passed over. I commenced the winter 1878-9 with 80 colonies all in good condition. I packed 45 in chaff and straw on the most approved plan; 35 were left on the summer stands without protection. In the spring, 9 of those packed in straw had died, and 1 of those unprotected; leaving 70 colonies to commence 1879 with. I fed them a barrel of honey, for I always keep the poorest honey to feed with. By the time of basswood bloom they were in fine condition, but the seven-year locusts swarmed the woods, storing all the small limbs full of eggs, especially the basswood; as a result there was no honey, and the fall was very dry with no dews; the result can easily be imagined. I had but 160 lbs. of surplus honey and no increase. Would

not the author of "Blessed Bees" do a good work for humanity by giving a little of this side of the bee question, instead of such exaggerated statements to deceive the over credulous? I have 400 basswood trees on my place averaging from 6 inches to 2 feet, all large enough to bloom profusely. What number of colonies do you think will find employment profitably, with that supply of basswood? Would 100 colonies be over-stocking in your opinion?

WILLIAM MORRIS.

[Such a place ought to be sufficient to supply more than 100 colonies in ordinary seasons.—ED.]

Dowagiac, Cass Co., Mich., Feb. 10.

Bees in this section (Southern Michigan) are in prime condition. I have lost but one out of nearly 500, all outdoors, mostly packed, one way and another. Those not packed seem as strong as any. The lost colony was queenless, and entirely overlooked. I will whistle again when entirely "out of the woods."

JAMES HEDDON

Bloomington, Ill., Feb. 13, 1880.

1. Can brandy barrels be used for honey without being waxed, or can they be used at all?

2. Do you think it advisable to have the prize boxes (where separators are used) wider than two inches?

3. What is a queen yard? Is there any contrivance, by means of which a queen that has her wing clipped, is compelled to return to the hive with the returning swarm? H. W. FUNK.

[1. They can, but all hard-wood barrels should be waxed.

2. No.

3. A place used for queen-rearing is sometimes called a "queen yard." We know of no such "contrivance."—ED.]

Columbus, Wis., Feb. 11, 1880.

Bees in this locality gathered very little surplus honey during the past season. Many I fear will be short of food, in their winter quarters, unless fed. I commenced last season with 6 colonies and increased to 23; and had 5 swarms from one hive in 7 days. Is not this rather uncommon? Some think I am mistaken, but I saw them all come out, so I am certain of it. By a streak of luck, I succeeded in rearing 5 queens from the Italian queen I received from you. I made a nucleus which started 5 queen-cells; two of them I cut out and introduced to other colonies, after making them queenless for 48 hours. I opened the nucleus at the time for the other cells to hatch, and found a fine queen out and piping; and the other two cells were vacated by two fine queens in less than 5 minutes. I put them under tumblers with a few workers, and went to a couple of colonies and killed their queens at once and sprinkled the bees with peppermint water, as well as the young queens, and they were accepted nicely. Could any green hand have done better? I winter in a dry cellar. There is quite a number of extensive bee-keepers in this county. ERASTUS BOWEN.

Elk Rapids, Mich., Jan. 12, 1880.

My bees are in good condition, on the summer stands "packed" inside as well as outside. They have had several nice "play spells," January having started in quite spring-like. GEO. E. STEELE.

Myersville, Md., Jan. 26, 1880.

The Cook's Manual, I purchased of you, a year ago, exceeded my expectations, it was highly interesting and instructive, giving minute directions for all the manipulations of the apiary. It is just the thing for a beginner, even though he has only one or two colonies. I commenced with black bees 2 years ago. After reading Prof. Cook's description of the 11 points of superiorty which the Italians possess over the blacks I concluded to Italianize. Last June I procured of Mr. D. A. Pike, two beautiful Italian queens and successfully introduced them the same day. In about 23 days I discovered young bees with three yellow bands. I was so much pleased with the conduct of the queens and their progeny that I immediately ordered two more Italian queens and one Albino. On July 16th, I received, and successfully introduced them. They have all produced beautiful workers. I have often opened the hives without protection for hands or face, and shown them to visitors and friends who are delighted with their beauty and amiability. I have yet to receive the first thrust as a sign of resentment from them. I agree with Prof. Cook, I would keep only Italians or Albinos for their amiability, did that quality stand alone. W. R. YOUNG.

Poplar Bluff, Mo., Feb. 1, 1880.

My bees are doing finely, gathering pollen and breeding fast. This is a fine country for bees. Our bloom is poplar, basswood, gum, grape vines, maple, locust, boneset, iron weed, golden rod and white clover. The clover is a native of this climate; in the timber we have the blackberry and others too numerous to mention. W. N. CRAVEN.

Business Matters.

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We do not send goods by C. O. D., unless sufficient money is sent with the order to pay express charges both ways, in case not taken from express office.

Strangers wishing to visit our office and Museum of Implements for the Apiary, should take the Madison street-cars (going west). They pass our door.

In consequence of the dearth of small currency in the country, we will receive either **1, 2 or 3 cent stamps,** for anything desired from this office. We cannot use Canadian or other foreign stamps.

We will send a tested Italian Queen to any one sending us **FIVE** subscribers to the AMERICAN BEE JOURNAL with **$7.50.** The premium Queens will in every case be tested, but not sent till after July 1st.

Club names for the BEE JOURNAL may be sent to as many post offices as there are names in the club. Additions can be made to clubs at any time at the same rate. Specimen copies, Posters, and Illustrated Price List sent free upon application, for canvassing.

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Our answer to all who ask credit is this: We sell on **small** margins, and cannot afford to take the risks of doing a credit business. If we did such a business, we should be obliged to add at least 10 to 20 per cent. more to our prices, to make up for those who would never pay, and to pay the expenses of keeping book-accounts with our customers—this we know our **Cash** customers would not think to their advantage.—This rule we must make general in order not to do injustice to any one. The cash system gives all the advantage to cash customers, while the credit system works to their injury. In justice to all we must therefore require **Cash with the order.**

☞ While in Europe we presented to Herr C. J. H. Gravenhorst, of Germany, a copy of Cook's Manual. We have received the following as his opinion of the book: "It is a most valuable work and one which no bee-keeper should neglect to read. It will in every way advance the science of apiculture."

☞ The Union Bee-Keepers' Association meets at Eminence, Ky., on April 1st, 1880. E. DRANE, *Sec. pro tem.*

The Cortland Union Convention will be held at Cortland, N. Y., on Tuesday, April 6, 1880. All interested in bees are cordially invited. C. M. BEAN, *Sec.*

☞ The Central Michigan Bee-Keepers' Association, will convene at the New Capitol in Lansing, April 15, 1880. An invitation is extended to all manufactors of apiarian supplies, who desire to exhibit their wares, to come and present them, or if consigned to the care of J. Ashworth, Pres., they will be exhibited. We expect a large meeting.
J. ASHWORTH, *President.*

Local Convention Directory.

1880.	*Time and Place of Meeting.*
April 1	—Union Association, at Eminence, Ky.
6	—Fireman's Hall, Cortland, N. Y.
29, 30	—W. Ill. and E. Iowa, at Monmouth, Ill.
May 4.	—N. W. Ill. & S. W. Wis., at Pecatonica, Ill.
4, 5	—Central Kentucky, at Lexington, Ky.
5	—Southern Michigan, at Battle Creek, Mich.
25.	—Northwestern Union, at Hastings, Minn.
Oct. —	—National, at Cincinnati, Ohio.
5, 6.	—Northern Michigan, at Carson City, Mich.
14	—Southern Kentucky, at Louisville, Ky.
Dec. 8.	—Michigan State, at Lansing, Mich.
1881.	
Feb. 2	—Northeastern, at Rome, N. Y.

☞ In order to have this Table complete, Secretaries are requested to forward full particulars of time and place of future meetings.—ED.

Honey and Beeswax Market.

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HONEY.—White clover, in single-comb sections, 16@18c.: when with more than one comb in a box, 2c. per lb. less. Extracted, 8@10c.

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